MC87-I-20G

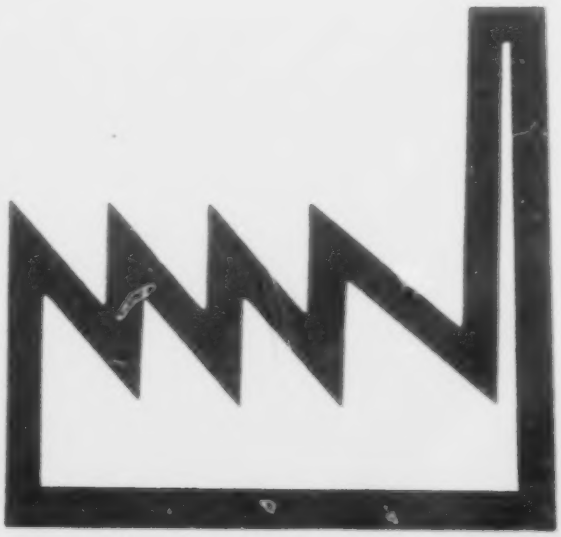
# 1987 Census of Manufactures

MC87-I-20G

INDUSTRY SERIES

## Fats and Oils

Industries 2074, 2075, 2076, 2077, and 2079



U.S. Department of Commerce
BUREAU OF THE CENSUS

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# ACKNOWLEDGMENTS

Many persons participated in the various activities of the 1987 Census of Manufactures.

The overall planning and review of the census operations were performed by the staff of the Office of the Assistant Director for Economic and Agriculture Censuses.

This report was prepared in the Industry Division. **John Govoni,** Assistant Chief for Census/ASM Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Michael Zampogna,** Chief, Census/ASM Nondurables Branch, assisted by **Ted McGrath,** Section Chief, with primary data analysis responsibilities performed by **Robert Miller.**

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Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call (301) 763-2510.

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## Industries 2074, 2075, 2076, 2077, and 2079

Issued December 1989

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# INTRODUCTION

## PURPOSE AND USES OF THE ECONOMIC CENSUSES

The economic censuses are the major source of facts about the structure and functioning of the Nation's economy. They provide essential information for government, business, industry, and the general public.

*Economic censuses furnish an important part of the framework for such composite measures as the gross national product, input-output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.*

*Policy-making agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.*

*State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.*

*Trade associations study trends in their own and competing industries, and keep their members informed of market changes.*

*Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.*

## AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic censuses every 5 years, covering years ending in 2 and 7. The 1987 Economic Censuses consist of the

Census of Retail Trade
Census of Wholesale Trade
Census of Service Industries
Census of Transportation
Census of Manufactures
Census of Mineral Industries
Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1987 Census of Agriculture and 1987 Census of Governments are conducted separately.) The next economic censuses are scheduled to be taken in 1993 covering the year 1992.

## AVAILABILITY OF THE DATA

The results of each of the economic censuses are available in printed reports, for sale by the U.S. Government Printing Office, and on microfiche, computer tape, compact discs with read-only memory, and flexible diskettes, for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Census Bureau, Washington, DC 20233. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State Data Centers in every State and Business and Industry Data Centers in many States also supply economic census statistics.

## WHAT'S NEW IN 1987

Several changes have taken place for the 1987 censuses. Data will be reported on the basis of the newly revised Standard Industrial Classification (SIC) system with selected reports including "bridge tables," linking the old and new classification systems. A new set of metropolitan areas has been adopted, and more detailed information will be available for businesses with no paid employees. For additional information on these changes, review the subsequent text.

## HISTORICAL INFORMATION

The economic censuses have been taken together as an integrated program at 5-year intervals since 1967, and before that for 1963, 1958, and 1954. Prior to that time, the individual censuses were taken separately at varying intervals.

The economic censuses trace their beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial

activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 manufactures census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade, and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 economic censuses were the first to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. These were the first censuses to be taken by mail, using lists of firms provided by the administrative records of other federal agencies. Since 1963, administrative records have also been used to provide basic statistics as well for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic censuses, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The Census of Construction Industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The Census of Transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks. New for 1987 are publications reporting on business establishments engaged in several transportation industries, paralleling the data on establishments in other sectors. This is part of a gradual expansion in coverage of industries previously subjected to government regulation. The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic censuses in 1972 along with the Survey of Women-Owned Businesses.

Economic censuses have also been taken in Puerto Rico since 1909, in the Virgin Islands and Guam since 1958, and in the Northern Mariana Islands since 1982.

Statistical reports from the 1982 and earlier censuses provide historical figures for the study of long-term time series, and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

## AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the censuses provide complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, the results of which appear in publication series such as *Current Business Reports* (retail and wholesale trade and service industries), the *Annual Survey of Manufactures, Current Industrial Reports,* and the *Quarterly Financial Report.* Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the censuses. The *County Business Patterns* program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

## SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1987 Economic Censuses and Related Statistics.* More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1987 Economic Censuses.* Contact Customer Services for information on availability.

## CENSUS OF MANUFACTURES

### General

This report, from the 1987 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as type of organization, distribution of sales by class of customer, concentration ratios and water use in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan statistical areas (MSA's), counties, and places. Selected statistical totals for "all manufacturing" have been shown in the State reports for MSA's with 250 employees or more and for counties and places with 450 employees or more.

The *General Summary* report will contain industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text will discuss the relationship of value added by manufacture to National income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

### Scope of Census and Definition of Manufacturing

The 1987 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial*

*Classification (SIC) Manual*[1]. This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

## Relationship Between Annual Survey of Manufactures and Census of Manufactures

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 56,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

## Establishment Basis of Reporting

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1987, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

## Manufacturing Universe and Census Report Forms

The 1987 Census of Manufactures universe includes approximately 350,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small Single-Establishment Companies Not Sent a Report Form**

   In the 1987 Census of Manufactures, approximately 150,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than five employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials

[1]**Standard Industrial Classification Manual: 1987:** For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, Stock No. 041-001-00314-2.

were not distributed among specific products and materials for these establishments but were included in the product and material "not specified by kind" (n.s.k.) categories.

The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes these administrative-record cases were only given a two- or three-digit SIC group. For the 1987 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as "not elsewhere classified" (n.e.c.) within the given two- or three-digit industry groups.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments Sent a Report Form**

The 200,000 establishments covered in the mail canvass were divided into three groups:

a. **ASM sample establishments**—This group consisted of approximately 56,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see appendix, Annual Survey of Manufactures).

In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is one of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM)**—Approximately 84,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive one of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM)**—This group consisted of approximately 60,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or "short" form was used. These establishments received one of the approximately 80 versions of the short form, which requested

summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

## Auxiliaries

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 10,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1987 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include (1) program planning, including sales research and coordination of purchasing, production, and distribution; (2) company purchasing, including general contracts and purchasing methods; (3) company financial policy and accounting; (4) general engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations; (5) direction of company personnel matters; and (6) legal and patent matters.

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

## Industry Classification of Establishments

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1987, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/77 and a reduction of three-digit groups from 143 in 1972/77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be "frozen" in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see appendix, Annual Survey of Manufactures).

However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The result of these rules covering the switching of plants from one industry classification to another is that, at the aggregate level, some industries comprise different mixes of establishments between survey years, and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

### Value of Shipments for the Industry Compared With Value of Product Shipments

This report shows value of shipments data for industries and products. In tables 1a through 5a, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

## CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed. However, the suppressed data are included in higher-level totals. Additional disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

## SPECIAL TABULATIONS

Special tabulations of data collected in the 1987 Census of Manufactures may be obtained on computer tape or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential

information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Industry Division, Bureau of the Census, Washington, DC 20233.

## ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

| | |
|---|---|
| - | Represents zero. |
| (D) | Withheld to avoid disclosing data for individual companies; data are included in higher level totals. |
| (NA) | Not available. |
| (NC) | Not comparable. |
| (S) | Withheld because estimate did not meet publication standards. |
| (X) | Not applicable. |
| (Z) | Less than half the unit shown. |
| do | Ditto. |
| n.e.c. | Not elsewhere classified. |
| n.s.k. | Not specified by kind. |
| pt. | Part. |
| r | Revised. |
| SIC | Standard Industrial Classification. |

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

## CONTACTS FOR DATA USERS

| Subject Area | Contact | Phone |
|---|---|---|
| Census/ASM | | |
| Durables | Kenneth Hansen | (301) 763-7304 |
| Nondurables | Michael Zampogna | (301) 763-2510 |
| Current Industrial Reports | | |
| Durables | Malcolm Bernhardt | (301) 763-2518 |
| Nondurables | Thomas Flood | (301) 763-5911 |
| Import/Export Publications | Foreign Trade Division | (301) 763-5140 |
| Industry Analysis and Forecasts | International Trade Administration | (202) 377-4356 |

# Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

| Item | Four-digit industry statistics | | | | | | | Five-digit product class and seven-digit product statistics | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Historical | Operating ratios | By geographic area | Summary and supplemental | By employment size | By industry and product class specialization | Materials consumed by kind | Industry-product analysis | Product shipments | Product class by geographic area | Historical product class |
| Number of companies | 1a | | | 3a | | | | | *6a | | |
| Number of establishments | 1a | | 2 | 3a | 4 | 5a | | | | | |
| Employment and payroll: | | | | | | | | | | | |
| Number of employees | 1a | 1b | 2 | 3a | 4 | 5a | | | | | |
| Payroll | 1a | 1b | 2 | 3a | 4 | 5a | | | | | |
| Supplemental labor costs | | | | 3a | | | | | | | |
| Production workers | 1a | 1b | 2 | 3a | 4 | 5a | | | | | |
| Production-worker hours | 1a | 1b | 2 | 3a | 4 | 5a | | | | | |
| Production-worker wages | 1a | 1b | 2 | 3a | 4 | 5a | | | | | |
| Shipments, cost of materials, and value added: | | | | | | | | | | | |
| Value of shipments (four-digit) | 1a | 1b | 2 | 3a | 4 | 5a | | 5b | | | |
| Product class shipments (five-digits) | | | | | | | | | 6a | 6b | 6c |
| Product shipments (seven-digit) | | | | | | | | | 6a | | |
| Value added by manufacture | 1a | 1b | 2 | 3a | 4 | 5a | | | | | |
| Cost of materials | 1a | 1b | 2 | 3a | 4 | 5a | | | | | |
| Fuels and electric energy | | | | 3a | | | | | | | |
| Materials consumed by kind | | | | | | | 7 | | | | |
| Inventories: | | | | | | | | | | | |
| Total, end of year | 1a | | | 3a | 4 | | | | | | |
| By stage of fabrication | | | | 3a | | | | | | | |
| Capital expenditures, assets, rental payments, and purchased services: | | | | | | | | | | | |
| New capital expenditures | 1a | | 2 | 3b | 4 | 5a | | | | | |
| Used plant and equipment expenditures | | | | 3b | | | | | | | |
| Gross assets | | | | 3b | | | | | | | |
| Depreciation | | | | 3b | | | | | | | |
| Retirements of buildings and machinery | | | | 3b | | | | | | | |
| Rental payments | | | | 3b | | | | | | | |
| Foreign content of materials consumed | | | | 3c | | | | | | | |
| Purchased services | | | | 3c | | | | | | | |
| Ratios: | | | | | | | | | | | |
| Specialization | 1a | | | 3a | | | | 5b | | | |
| Coverage | 1a | | | 3a | | | | 5b | | | |

*Number of companies with shipments of more than $100 thousand.

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## Fats and Oils

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# DESCRIPTION OF INDUSTRIES AND SUMMARY OF FINDINGS

This report shows 1987 Census of Manufactures statistics for establishments classified in each of the following industries:

## SIC CODE AND TITLE

| | |
|---|---|
| 2074 | Cottonseed Oil Mills |
| 2075 | Soybean Oil Mills |
| 2076 | Vegetable Oil Mills, N.E.C. |
| 2077 | Animal and Marine Fats and Oils |
| 2079 | Edible Fats and Oils, N.E.C. |

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account when comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the "product mix" is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Small single-establishment companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. For these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated), data on payrolls and receipts were obtained from administrative records of other Federal agencies. The remaining statistics were developed from industry averages.

Establishment data were tabulated based on industry definitions included in the 1987 Standard Industrial Classification (SIC) Manual[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1987 and 1982 censuses is shown in the appendixes. These appendixes present, in tabular form, the linkage from 1987 to 1982.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

## INDUSTRY 2074, COTTONSEED OIL MILLS

This industry is made up of establishments primarily engaged in the manufacture of cottonseed oil and byproduct cake, meal, and linters. Establishments primarily engaged in refining cottonseed oil into edible cooking oils are classified in industry 2079.

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1987 Census of Manufactures, Industry 2074, Cottonseed Oil Mills, had employment of 2.6 thousand. The employment figure was 50 percent below the 5.2 thousand reported in 1982. Compared with 1986, employment decreased 28 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses. The leading States in employment in 1987 were Texas and Mississippi. This represents a shift from 1982 when Texas and California were the leading States.

The total value of shipments for establishments classified in this industry was $470.7 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2074 shipped $402.6 million of products considered primary to the industry, $12.2 million of secondary products, and had $55.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 97 percent (specialization ratio). In 1982, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1982, the coverage ratio was 97 percent. The products primary to industry 2074, no matter in what industry they

[1]**Standard Industrial Classification Manual: 1987.** For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

were produced, appear in table 6a and aggregate to $434.6 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the cottonseed oil mills industry amounted to $378.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of total value of shipments.

## INDUSTRY 2075, SOYBEAN OIL MILLS

This industry is made up of establishments primarily engaged in the manufacture of soybean oil and byproduct cake and meal. Establishments primarily engaged in refining soybean oil into edible cooking oils are classified in industry 2079.

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1987 Census of Manufactures, Industry 2075, Soybean Oil Mills, had employment of 7.0 thousand. The employment figure was 21 percent below the 8.9 thousand reported in 1982. Compared with 1986, employment remained the same. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses. The leading States in employment in 1987 were Illinois and Iowa, accounting for 33 percent of the industry's employment. These same States were the leaders in 1982 when they accounted for 40 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $9.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2075 shipped $7.6 billion of products considered primary to the industry, $836.8 million of secondary products, and had $683.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 90 percent (specialization ratio). In 1982, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1982, the coverage ratio was 95 percent. The products primary to industry 2075, no matter in what industry they were produced, appear in table 6a and aggregate to $7.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the soybean oil mills industry amounted to $ 8.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of total value of shipments.

## INDUSTRY 2076, VEGETABLE OIL MILLS, N.E.C.

This industry is made up of establishments primarily engaged in the manufacture of vegetable oils and byproduct cake and meal, except corn, cottonseed, and soybean. Establishments primarily engaged in the manufacture of corn oil and its byproducts are classified in industry 2046; those refining vegetable oils into edible cooking oils, in industry 2079; and those refining these oils for medicinal purposes, in industry 2833.

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1987 Census of Manufactures, Industry 2076, Vegetable Oil Mills, N.E.C., had employment of .9 thousand. The employment figure was 31 percent below the 1.3 thousand reported in 1982. Compared with 1986, employment decreased 18 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses. The leading States in employment in 1987 were California and Georgia accounting for 56 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $431.5 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2076 shipped $351.6 million of products considered primary to the industry, $50.1 million of secondary products, and had $29.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 88 percent (specialization ratio). In 1982, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 72 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1982, the coverage ratio was 78 percent. The products

primary to industry 2076, no matter in what industry they were produced, appear in table 6a and aggregate to $490.0 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the vegetable oil mills, n.e.c., industry amounted to $ 353.3 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of total value of shipments.

## INDUSTRY 2077, ANIMAL AND MARINE FATS AND OILS

This industry is made up of establishments primarily engaged in the manufacturing of animal oils, including fish oil and other marine animal oils, and fish and tallow from animal fat, bones, and meat scraps. Establishments primarily engaged in manufacturing lard and edible tallow and stearin are classified in industry group 201; those refining marine animal oils for medicinal purposes are classified in industry 2833; and those manufacturing fatty acids are classified in industry 2899.

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1987 Census of Manufactures, Industry 2077, Animal and Marine Fats and Oils, had employment of 10.3 thousand. The employment figure was 5 percent below the 10.8 thousand reported in 1982. Compared with 1986, employment decreased 5 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses. The leading States in employment in 1987 were North Carolina, California, Virginia, and Texas. These same States were the leaders in 1982.

The total value of shipments for establishments classified in this industry was $1.8 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2077 shipped $1.5 billion of products considered primary to the industry, $60.3 million of secondary products, and had $168.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 96 percent (specialization ratio). In 1982, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 71 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1982, the coverage ratio was 68 percent. The products primary to industry 2077, no matter in what industry they were produced, appear in table 6a and aggregate to $2.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the animal and marine fats and oils industry amounted to $1.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of total value of shipments.

## INDUSTRY 2079, EDIBLE FATS AND OILS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing shortening, table oils, margarine, and other edible fats and oils, not elsewhere classified. Establishments primarily engaged in producing corn oil are classified in industry 2046.

In the 1987 Census of Manufactures, Industry 2079, Edible Fats and Oils, N.E.C., had employment of 9.3 thousand. The employment figure was 26 percent below the 12.5 thousand reported in 1982. Compared with 1986, employment decreased 11 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses. The leading States in employment in 1987 were Illinois, California, and Texas, accounting for 41 percent of the industry's employment. These same States were the leaders in 1982, when they accounted for 40 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2079 shipped $3.6 billion of products considered primary to the industry, $404.5 million of secondary products, and had $128.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 90 percent (specialization ratio). In 1982, the specialization ratio was 85 percent.

Establishments in this industry also accounted for 77 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio).

In 1982, the coverage ratio also was 77 percent. The products primary to industry 2079, no matter in what industry they were produced, appear in table 6a and aggregate to $4.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the edible fats and oils, n.e.c., industry amounted to $2.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of total value of shipments.

# Table 1a. Historical Statistics for the Industry: 1987 and Earlier Years

[1987 industry definitions are the same as in the 1972/77 Standard Industrial Classification (SIC) system. Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| Year[1] | All establishments[2] | | All employees | | Production workers | | | Value added by manufacture[4] (million dollars) | Cost of materials[5] (million dollars) | Value of shipments (million dollars) | New capital expenditures[6] (million dollars) | End-of-year inventories[4] (million dollars) | Ratios | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Companies[3] (no.) | Total (no.) | With 20 employees or more (no.) | Number (1,000) | Payroll (million dollars) | Number (1,000) | Hours (millions) | Wages (million dollars) | | | | | Specialization[7] (percent) | Coverage[8] (percent) |
| **INDUSTRY 2074, COTTONSEED OIL MILLS** | | | | | | | | | | | | | | |
| 1987 Census | 31 | 52 | 40 | 2.6 | 44.8 | 2.0 | 4.5 | 29.8 | 106.9 | 378.8 | 470.7 | 12.2 | 145.8 | 97 | 93 |
| 1986 ASM | (NA) | (NA) | (NA) | 3.6 | 61.2 | 2.8 | 6.2 | 40.3 | 177.4 | 487.6 | 678.0 | 17.9 | 133.7 | (NA) | (NA) |
| 1985 ASM | (NA) | (NA) | (NA) | 3.5 | 64.5 | 2.7 | 6.6 | 44.3 | 219.3 | 640.2 | 860.8 | 22.0 | 155.8 | (NA) | (NA) |
| 1984 ASM | (NA) | (NA) | (NA) | 3.3 | 57.9 | 2.6 | 6.0 | 39.4 | 197.2 | 727.0 | 906.2 | 23.2 | 187.9 | (NA) | (NA) |
| 1983 ASM | (NA) | (NA) | (NA) | 4.1 | 65.2 | 3.3 | 7.4 | 44.7 | 229.9 | 572.9 | 791.4 | 16.9 | 205.6 | (NA) | (NA) |
| 1982 Census | 47 | 77 | 59 | 5.2 | 76.2 | 4.3 | 9.7 | 54.5 | 202.9 | 715.0 | 933.3 | 59.6 | 191.8 | 94 | 97 |
| 1981 ASM | (NA) | (NA) | (NA) | 5.5 | 74.3 | 4.5 | 9.5 | 52.2 | 223.2 | 859.8 | 1 086.1 | 948.2 | 233.8 | (NA) | (NA) |
| 1980 ASM | (NA) | (NA) | (NA) | 5.3 | 63.4 | 4.3 | 9.5 | 45.4 | 201.8 | 820.2 | 1 033.7 | 24.5 | 251.7 | (NA) | (NA) |
| 1979 ASM | (NA) | (NA) | (NA) | 5.4 | 60.0 | 4.3 | 9.4 | 43.0 | 231.6 | 733.6 | 938.2 | 17.7 | 276.7 | (NA) | (NA) |
| 1978 ASM | (NA) | (NA) | (NA) | 5.7 | 58.7 | 4.6 | 10.1 | 41.9 | 222.0 | 734.1 | 969.8 | 929.9 | 212.1 | (NA) | (NA) |
| 1977 Census | 62 | 97 | 71 | 5.2 | 51.5 | 4.1 | 9.3 | 35.9 | 197.4 | 670.8 | 859.2 | 13.0 | 195.4 | 86 | 89 |
| 1976 ASM | (NA) | (NA) | (NA) | 4.9 | 44.3 | 3.8 | 8.2 | 29.3 | 128.7 | 629.0 | 756.5 | 11.7 | 256.5 | (NA) | (NA) |
| 1975 ASM | (NA) | (NA) | (NA) | 5.6 | 46.0 | 4.4 | 9.5 | 31.4 | 203.0 | 790.6 | 970.1 | 17.0 | 221.7 | (NA) | (NA) |
| 1974 ASM | (NA) | (NA) | (NA) | 5.7 | 40.7 | 4.6 | 10.6 | 29.0 | 239.4 | 682.2 | 870.6 | 11.1 | 265.9 | (NA) | (NA) |
| 1973 ASM | (NA) | (NA) | (NA) | 5.9 | 37.1 | 4.7 | 10.5 | 26.7 | 166.3 | 410.7 | 549.2 | 8.7 | 169.0 | (NA) | (NA) |
| 1972 Census | 74 | 115 | 84 | 5.5 | 34.2 | 4.4 | 9.8 | 24.0 | 88.2 | 368.1 | 458.7 | 9.9 | 97.9 | 85 | 88 |
| **INDUSTRY 2075, SOYBEAN OIL MILLS** | | | | | | | | | | | | | | |
| 1987 Census | 47 | 106 | 73 | 7.0 | 172.5 | 4.8 | 10.1 | 112.2 | 1 011.5 | 8 103.3 | 9 074.1 | 90.7 | 928.8 | 90 | 98 |
| 1986 ASM | (NA) | (NA) | (NA) | 7.0 | 166.6 | 4.6 | 9.4 | 106.4 | 676.7 | 7 104.6 | 7 815.5 | 93.3 | 480.4 | (NA) | (NA) |
| 1985 ASM | (NA) | (NA) | (NA) | 7.3 | 168.8 | 4.8 | 10.1 | 110.8 | 711.7 | 7 911.7 | 8 629.4 | 109.5 | 625.0 | (NA) | (NA) |
| 1984 ASM | (NA) | (NA) | (NA) | 7.9 | 186.6 | 5.3 | 11.0 | 117.9 | 651.6 | 9 067.3 | 9 388.2 | 96.5 | 679.6 | (NA) | (NA) |
| 1983 ASM | (NA) | (NA) | (NA) | 8.1 | 180.6 | 5.6 | 12.1 | 119.9 | 868.1 | 8 362.2 | 9 059.8 | 79.5 | 1 293.5 | (NA) | (NA) |
| 1982 Census | 52 | 114 | 84 | 8.9 | 188.7 | 6.2 | 13.4 | 123.1 | 678.2 | 7 896.8 | 8 603.6 | 113.4 | 883.9 | 88 | 95 |
| 1981 ASM | (NA) | (NA) | (NA) | 9.9 | 184.6 | 7.0 | 14.9 | 121.6 | 819.8 | 8 375.7 | 9 176.9 | 161.0 | 858.4 | (NA) | (NA) |
| 1980 ASM | (NA) | (NA) | (NA) | 10.3 | 178.0 | 7.5 | 15.7 | 116.6 | 846.4 | 8 813.6 | 9 752.1 | 138.9 | 1 181.0 | (NA) | (NA) |
| 1979 ASM | (NA) | (NA) | (NA) | 10.2 | 161.6 | 7.3 | 15.3 | 105.1 | 907.9 | 8 296.5 | 9 085.3 | 93.5 | 1 150.7 | (NA) | (NA) |
| 1978 ASM | (NA) | (NA) | (NA) | 9.9 | 149.6 | 7.0 | 15.1 | 100.3 | 612.9 | 7 671.1 | 8 234.4 | 145.4 | 888.4 | (NA) | (NA) |
| 1977 Census | 65 | 121 | 87 | 9.4 | 130.7 | 6.6 | 14.7 | 87.8 | 373.8 | 7 012.8 | 7 580.0 | 72.3 | 804.9 | 87 | 98 |
| 1976 ASM | (NA) | (NA) | (NA) | 9.5 | 121.5 | 6.7 | 14.6 | 82.3 | 624.2 | 6 378.8 | 6 739.7 | 87.5 | 1 295.7 | (NA) | (NA) |
| 1975 ASM | (NA) | (NA) | (NA) | 9.5 | 110.2 | 6.9 | 14.5 | 71.4 | 340.1 | 5 651.4 | 6 159.1 | 119.5 | 807.8 | (NA) | (NA) |
| 1974 ASM | (NA) | (NA) | (NA) | 10.4 | 112.9 | 7.7 | 15.8 | 73.7 | 691.9 | 6 733.4 | 7 326.3 | 80.9 | 776.7 | (NA) | (NA) |
| 1973 ASM | (NA) | (NA) | (NA) | 9.9 | 97.9 | 7.4 | 16.0 | 64.1 | 623.2 | 4 737.9 | 5 272.9 | 53.4 | 715.0 | (NA) | (NA) |
| 1972 Census | 54 | 94 | 74 | 9.1 | 82.4 | 6.6 | 14.8 | 54.7 | 350.0 | 3 065.5 | 3 357.2 | 41.9 | 577.2 | 85 | 96 |
| **INDUSTRY 2076, VEGETABLE OIL MILLS, N.E.C.** | | | | | | | | | | | | | | |
| 1987 Census | 20 | 23 | 15 | .9 | 19.9 | .5 | 1.1 | 11.4 | 82.7 | 353.3 | 431.5 | 4.9 | 81.5 | 88 | 72 |
| 1986 ASM | (NA) | (NA) | (NA) | 1.1 | 20.4 | .8 | 1.7 | 12.5 | 110.4 | 426.4 | 524.5 | 1.3 | 73.0 | (NA) | (NA) |
| 1985 ASM | (NA) | (NA) | (NA) | 1.2 | 21.4 | .9 | 1.8 | 14.5 | 43.1 | 507.3 | 566.0 | (D) | 83.0 | (NA) | (NA) |
| 1984 ASM | (NA) | (NA) | (NA) | 1.3 | 21.9 | 1.0 | 2.1 | 15.4 | 53.1 | 546.6 | 616.7 | 44.0 | 110.7 | (NA) | (NA) |
| 1983 ASM | (NA) | (NA) | (NA) | 1.3 | 24.2 | 1.0 | 2.1 | 16.1 | 134.0 | 543.0 | 659.0 | 58.4 | 108.0 | (NA) | (NA) |
| 1982 Census | 26 | 29 | 15 | 1.3 | 22.3 | .9 | 1.8 | 14.8 | 80.0 | 467.0 | 556.9 | 56.9 | 83.8 | 93 | 78 |
| 1981 ASM | (NA) | (NA) | (NA) | 1.5 | 25.1 | 1.1 | 2.3 | 17.2 | 120.1 | 439.7 | 581.8 | 912.7 | 72.5 | (NA) | (NA) |
| 1980 ASM | (NA) | (NA) | (NA) | 1.4 | 20.9 | 1.0 | 2.2 | 14.2 | 108.5 | 339.6 | 435.1 | 13.6 | 92.5 | (NA) | (NA) |
| 1979 ASM | (NA) | (NA) | (NA) | 1.4 | 19.4 | 1.0 | 2.1 | 13.4 | 103.7 | 306.4 | 397.6 | 9.2 | 89.7 | (NA) | (NA) |
| 1978 ASM | (NA) | (NA) | (NA) | 1.5 | 18.8 | 1.1 | 2.3 | 13.2 | 54.5 | 280.1 | 346.5 | 6.2 | 79.4 | (NA) | (NA) |
| 1977 Census | 37 | 42 | 19 | 1.5 | 17.6 | 1.1 | 2.5 | 12.2 | 58.4 | 304.7 | 360.8 | 7.4 | 89.3 | 88 | 58 |
| 1976 ASM | (NA) | (NA) | (NA) | 1.6 | 17.7 | 1.1 | 2.4 | 11.1 | 58.5 | 470.3 | 526.1 | 7.2 | 78.5 | (NA) | (NA) |
| 1975 ASM | (NA) | (NA) | (NA) | 1.6 | 18.5 | 1.1 | 2.4 | 10.7 | 59.5 | 490.1 | 558.3 | 3.1 | 89.3 | (NA) | (NA) |
| 1974 ASM | (NA) | (NA) | (NA) | 1.6 | 17.5 | 1.1 | 2.5 | 11.3 | 103.1 | 453.8 | 542.3 | 2.6 | 78.3 | (NA) | (NA) |
| 1973 ASM | (NA) | (NA) | (NA) | 1.1 | 11.4 | 1.0 | 1.9 | 8.4 | 59.3 | 341.2 | 385.9 | 2.7 | 83.4 | (NA) | (NA) |
| 1972 Census | 28 | 31 | 17 | 1.2 | 11.6 | .9 | 1.9 | 7.8 | 44.8 | 227.1 | 261.0 | 3.1 | 40.7 | 93 | 63 |
| **INDUSTRY 2077, ANIMAL AND MARINE FATS AND OILS** | | | | | | | | | | | | | | |
| 1987 Census | 194 | 305 | 154 | 10.3 | 215.7 | 6.2 | 12.8 | 111.5 | 752.9 | 1 022.9 | 1 763.4 | 60.4 | 88.7 | 96 | 71 |
| 1986 ASM | (NA) | (NA) | (NA) | 10.8 | 223.6 | 5.9 | 11.2 | 114.3 | 635.9 | 989.6 | 1 632.8 | 41.3 | 55.7 | (NA) | (NA) |
| 1985 ASM | (NA) | (NA) | (NA) | 11.1 | 233.9 | 6.9 | 13.0 | 122.3 | 609.6 | 1 189.2 | 1 820.2 | (D) | 62.2 | (NA) | (NA) |
| 1984 ASM | (NA) | (NA) | (NA) | 13.7 | 253.6 | 9.2 | 15.7 | 135.4 | 730.0 | 1 599.1 | 2 323.2 | 76.2 | 82.6 | (NA) | (NA) |
| 1983 ASM | (NA) | (NA) | (NA) | 10.7 | 215.6 | 7.1 | 15.1 | 126.1 | 630.1 | 1 202.6 | 1 817.7 | 58.7 | 91.3 | (NA) | (NA) |
| 1982 Census | 270 | 396 | 189 | 10.8 | 215.1 | 7.2 | 15.5 | 127.8 | 562.6 | 1 188.5 | 1 752.5 | 56.5 | 81.2 | 97 | 66 |
| 1981 ASM | (NA) | (NA) | (NA) | 11.8 | 210.9 | 8.2 | 17.2 | 133.6 | 642.9 | 1 261.5 | 1 902.0 | 955.0 | 89.7 | (NA) | (NA) |
| 1980 ASM | (NA) | (NA) | (NA) | 12.7 | 207.1 | 9.1 | 19.0 | 127.4 | 635.5 | 1 247.5 | 1 884.7 | 50.7 | 85.5 | (NA) | (NA) |
| 1979 ASM | (NA) | (NA) | (NA) | 13.6 | 205.5 | 10.2 | 22.0 | 137.3 | 671.4 | 1 309.7 | 1 984.1 | 50.6 | 83.6 | (NA) | (NA) |
| 1978 ASM | (NA) | (NA) | (NA) | 13.4 | 190.8 | 9.9 | 21.8 | 120.7 | 607.0 | 1 237.6 | 1 844.5 | 56.1 | 85.5 | (NA) | (NA) |
| 1977 Census | 384 | 500 | 201 | 12.4 | 171.2 | 8.7 | 19.2 | 103.8 | 583.8 | 1 086.7 | 1 655.0 | 53.3 | 70.2 | 94 | 68 |
| 1976 ASM | (NA) | (NA) | (NA) | 11.2 | 142.9 | 7.9 | 16.5 | 89.3 | 488.2 | 845.9 | 1 328.0 | 42.7 | 48.6 | (NA) | (NA) |
| 1975 ASM | (NA) | (NA) | (NA) | 11.1 | 135.7 | 7.6 | 16.4 | 88.3 | 382.2 | 715.8 | 1 097.4 | 49.7 | 41.5 | (NA) | (NA) |
| 1974 ASM | (NA) | (NA) | (NA) | 10.2 | 122.0 | 7.1 | 15.8 | 77.7 | 439.1 | 906.3 | 1 341.0 | 26.4 | 42.2 | (NA) | (NA) |
| 1973 ASM | (NA) | (NA) | (NA) | 12.8 | 141.8 | 9.2 | 20.9 | 84.9 | 544.2 | 797.9 | 1 321.4 | 44.4 | 50.4 | (NA) | (NA) |
| 1972 Census | 402 | 511 | 196 | 11.6 | 106.0 | 8.4 | 18.5 | 68.3 | 296.7 | 470.4 | 764.7 | 31.0 | 29.3 | 94 | 68 |
| **INDUSTRY 2079, EDIBLE FATS AND OILS, N.E.C.** | | | | | | | | | | | | | | |
| 1987 Census | 86 | 100 | 74 | 9.3 | 253.3 | 6.6 | 13.7 | 167.4 | 1 260.1 | 2 886.3 | 4 151.1 | 86.2 | 281.1 | 90 | 77 |
| 1986 ASM | (NA) | (NA) | (NA) | 10.4 | 262.7 | 7.2 | 14.5 | 166.9 | 1 290.0 | 3 631.3 | 4 951.0 | 82.0 | 400.4 | (NA) | (NA) |
| 1985 ASM | (NA) | (NA) | (NA) | 10.7 | 264.8 | 7.5 | 15.3 | 168.9 | 1 190.4 | 4 368.1 | 5 608.4 | 100.3 | 418.9 | (NA) | (NA) |
| 1984 ASM | (NA) | (NA) | (NA) | 11.4 | 271.2 | 8.2 | 16.6 | 175.3 | 1 291.3 | 4 444.8 | 5 716.9 | 77.2 | 550.1 | (NA) | (NA) |
| 1983 ASM | (NA) | (NA) | (NA) | 11.6 | 270.9 | 8.1 | 16.6 | 171.5 | 1 199.6 | 3 580.1 | 4 745.0 | 84.7 | 409.5 | (NA) | (NA) |
| 1982 Census | 79 | 118 | 85 | 12.5 | 272.0 | 8.7 | 17.6 | 173.8 | 1 261.7 | 3 643.3 | 4 905.6 | 96.5 | 353.1 | 85 | 77 |
| 1981 ASM | (NA) | (NA) | (NA) | 12.0 | 249.3 | 8.5 | 17.6 | 164.5 | 1 140.3 | 4 030.2 | 5 202.0 | 102.9 | 357.9 | (NA) | (NA) |
| 1980 ASM | (NA) | (NA) | (NA) | 12.8 | 243.1 | 9.0 | 18.4 | 160.9 | 1 030.4 | 4 114.5 | 5 131.6 | 84.1 | 426.9 | (NA) | (NA) |
| 1979 ASM | (NA) | (NA) | (NA) | 12.8 | 231.2 | 8.9 | 19.0 | 155.0 | 1 077.5 | 4 271.6 | 5 290.6 | 82.9 | 436.7 | (NA) | (NA) |
| 1978 ASM | (NA) | (NA) | (NA) | 13.1 | 214.2 | 9.2 | 19.0 | 143.0 | 937.0 | 3 887.7 | 4 783.5 | 70.7 | 403.2 | (NA) | (NA) |

See footnotes at end of table.

## Table 1a. Historical Statistics for the Industry: 1987 and Earlier Years—Con.

[1987 industry definitions are the same as in the 1972/77 Standard Industrial Classification (SIC) system. Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| Year[1] | Companies[2] (no.) | All establishments[3] Total (no.) | All establishments[3] With 20 employees or more (no.) | All employees Number (1,000) | All employees Payroll (million dollars) | Production workers Number (1,000) | Production workers Hours (millions) | Production workers Wages (million dollars) | Value added by manufacture[4] (million dollars) | Cost of materials[5] (million dollars) | Value of shipments (million dollars) | New capital expenditures[6] (million dollars) | End-of-year inventories[4] (million dollars) | Ratios Specialization[7] (percent) | Ratios Coverage[8] (percent) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **INDUSTRY 2079, EDIBLE FATS AND OILS, N.E.C.—Con.** | | | | | | | | | | | | | | | |
| 1977 Census | 67 | 109 | 80 | 12.7 | 190.5 | 9.0 | 18.7 | 125.8 | 691.8 | 3 293.3 | 4 025.0 | 62.1 | 324.3 | 89 | 77 |
| 1976 ASM | (NA) | (NA) | (NA) | 13.0 | 170.1 | 9.3 | 19.5 | 114.3 | 734.0 | 2 748.3 | 3 450.9 | 42.1 | 355.9 | (NA) | (NA) |
| 1975 ASM | (NA) | (NA) | (NA) | 12.9 | 161.3 | 9.1 | 19.1 | 107.8 | 664.3 | 3 297.9 | 3 996.5 | 42.8 | 340.6 | (NA) | (NA) |
| 1974 ASM | (NA) | (NA) | (NA) | 13.1 | 152.8 | 9.2 | 19.4 | 102.6 | 700.2 | 3 360.6 | 3 974.4 | 28.7 | 395.0 | (NA) | (NA) |
| 1973 ASM | (NA) | (NA) | (NA) | 13.3 | 147.0 | 9.5 | 20.3 | 98.6 | 619.7 | 2 278.8 | 2 848.5 | 33.7 | 251.2 | (NA) | (NA) |
| 1972 Census | 64 | 109 | 86 | 12.9 | 133.7 | 9.0 | 19.5 | 87.8 | 512.6 | 1 549.4 | 2 068.1 | 35.5 | 167.1 | 89 | 78 |

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1972, see 1972 Census of Manufactures, vol. II, table 1a of the Industry chapter

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during year.

[4]Beginning with the 1982 Census of Manufactures, all respondents were requested to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior Censuses and annual surveys of manufactures in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, inventories and value added by manufacture are not comparable to prior-year data.

[5]Detailed data on materials consumed by type are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

[9]Estimates for new capital expenditures have associated standard error of 15 percent or more and may be of limited reliability. Estimates for other data items are of acceptable reliability.

## Table 1b. Selected Operating Ratios for the Industry: 1987 and Earlier Years

[1987 industry definitions are the same as in the 1972/77 Standard Industrial Classification (SIC) system. Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| Year | Payroll per employee (dollars) | Production workers as percent of total employment (percent) | Annual hours of production workers (number) | Average hourly earnings of production workers (dollars) | Cost of materials as percent of value of shipments (percent) | Cost of materials and payroll as percent of value of shipments (percent) | Value added per employee (dollars) | Payroll as percent of value added (percent) | Value added per production worker hour (dollars) |
|---|---|---|---|---|---|---|---|---|---|
| **INDUSTRY 2074, COTTONSEED OIL MILLS** | | | | | | | | | |
| 1987 Census | 17 231 | 77 | 2 250 | 6.62 | 80 | 90 | 41 115 | 42 | 23.76 |
| 1986 ASM | 17 000 | 78 | 2 214 | 6.50 | 72 | 81 | 49 276 | 34 | 28.61 |
| 1985 ASM | 18 428 | 77 | 2 444 | 6.71 | 73 | 80 | 62 657 | 29 | 33.23 |
| 1984 ASM | 17 545 | 79 | 2 308 | 6.57 | 80 | 87 | 59 758 | 29 | 32.87 |
| 1983 ASM | 15 902 | 80 | 2 242 | 6.04 | 72 | 81 | 58 073 | 28 | 31.07 |
| 1982 Census | 14 653 | 83 | 2 256 | 5.62 | 77 | 85 | 39 019 | 38 | 20.92 |
| 1981 ASM | 13 509 | 82 | 2 111 | 5.49 | 79 | 86 | 40 582 | 33 | 23.49 |
| 1980 ASM | 11 962 | 81 | 2 209 | 4.78 | 79 | 85 | 38 075 | 31 | 21.24 |
| 1979 ASM | 11 111 | 80 | 2 186 | 4.57 | 78 | 85 | 42 889 | 26 | 24.64 |
| 1978 ASM | 10 298 | 81 | 2 196 | 4.15 | 76 | 82 | 38 947 | 26 | 21.98 |
| 1977 Census | 9 903 | 79 | 2 268 | 3.86 | 78 | 84 | 37 962 | 26 | 21.23 |
| 1976 ASM | 9 040 | 78 | 2 158 | 3.57 | 83 | 89 | 26 265 | 34 | 15.70 |
| 1975 ASM | 8 214 | 79 | 2 159 | 3.31 | 81 | 86 | 36 250 | 23 | 21.37 |
| 1974 ASM | 7 140 | 81 | 2 304 | 2.74 | 76 | 81 | 42 000 | 17 | 22.58 |
| 1973 ASM | 6 288 | 80 | 2 234 | 2.54 | 75 | 82 | 28 186 | 22 | 15.84 |
| 1972 Census | 6 218 | 80 | 2 227 | 2.45 | 80 | 88 | 16 036 | 39 | 9.00 |
| **INDUSTRY 2075, SOYBEAN OIL MILLS** | | | | | | | | | |
| 1987 Census | 24 643 | 69 | 2 104 | 11.11 | 89 | 91 | 144 500 | 17 | 100.15 |
| 1986 ASM | 23 800 | 66 | 2 043 | 11.32 | 91 | 93 | 96 671 | 25 | 71.99 |
| 1985 ASM | 23 123 | 66 | 2 104 | 10.97 | 92 | 94 | 97 493 | 24 | 70.47 |
| 1984 ASM | 23 620 | 67 | 2 075 | 10.72 | 91 | 93 | 82 481 | 29 | 59.24 |
| 1983 ASM | 22 296 | 69 | 2 161 | 9.91 | 92 | 94 | 109 642 | 20 | 73.40 |
| 1982 Census | 21 202 | 70 | 2 161 | 9.19 | 92 | 94 | 76 202 | 28 | 50.61 |
| 1981 ASM | 18 646 | 71 | 2 129 | 8.16 | 91 | 93 | 82 808 | 23 | 55.02 |
| 1980 ASM | 17 281 | 73 | 2 093 | 7.43 | 90 | 92 | 82 175 | 21 | 53.91 |
| 1979 ASM | 15 843 | 72 | 2 096 | 6.87 | 91 | 93 | 89 010 | 18 | 59.34 |
| 1978 ASM | 15 111 | 71 | 2 157 | 6.64 | 93 | 95 | 61 909 | 24 | 40.59 |
| 1977 Census | 13 904 | 70 | 2 227 | 5.97 | 93 | 94 | 39 766 | 35 | 25.43 |
| 1976 ASM | 12 789 | 71 | 2 179 | 5.64 | 95 | 96 | 65 705 | 19 | 42.75 |
| 1975 ASM | 11 600 | 73 | 2 101 | 4.92 | 92 | 94 | 35 800 | 32 | 23.46 |
| 1974 ASM | 10 855 | 74 | 2 052 | 4.66 | 92 | 93 | 66 529 | 16 | 43.79 |
| 1973 ASM | 9 888 | 75 | 2 162 | 4.01 | 90 | 92 | 62 949 | 16 | 38.95 |
| 1972 Census | 9 054 | 73 | 2 242 | 3.70 | 91 | 94 | 38 462 | 24 | 23.66 |
| **INDUSTRY 2076, VEGETABLE OIL MILLS, N.E.C.** | | | | | | | | | |
| 1987 Census | 22 111 | 56 | 2 200 | 10.36 | 82 | 88 | 91 889 | 24 | 75.18 |
| 1986 ASM | 18 545 | 73 | 2 125 | 7.35 | 81 | 85 | 100 364 | 18 | 64.94 |
| 1985 ASM | 17 833 | 75 | 2 000 | 8.06 | 90 | 93 | 35 917 | 50 | 23.94 |
| 1984 ASM | 16 846 | 77 | 2 100 | 7.33 | 89 | 92 | 40 848 | 41 | 25.29 |
| 1983 ASM | 18 615 | 77 | 2 100 | 7.67 | 82 | 86 | 103 077 | 18 | 83.81 |
| 1982 Census | 17 153 | 69 | 2 000 | 8.22 | 84 | 88 | 61 538 | 28 | 44.44 |
| 1981 ASM | 16 733 | 73 | 2 091 | 7.48 | 76 | 80 | 90 067 | 21 | 52.22 |
| 1980 ASM | 14 926 | 71 | 2 200 | 6.45 | 78 | 83 | 77 500 | 19 | 49.32 |
| 1979 ASM | 13 857 | 71 | 2 100 | 6.38 | 77 | 82 | 74 071 | 19 | 49.38 |
| 1978 ASM | 12 533 | 73 | 2 091 | 5.74 | 81 | 86 | 36 333 | 34 | 23.70 |

See footnotes at end of table.

## Table 1b. Selected Operating Ratios for the Industry: 1987 and Earlier Years—Con.

[1987 industry definitions are the same as in the 1972/77 Standard Industrial Classification (SIC) system. Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| Year | Payroll per employee (dollars) | Production workers as percent of total employment (percent) | Annual hours of production workers (number) | Average hourly earnings of production workers (dollars) | Cost of materials as percent of value of shipments (percent) | Cost of materials and payroll as percent of value of shipments (percent) | Value added per employee (dollars) | Payroll as percent of value added (percent) | Value added per production worker hour (dollars) |
|---|---|---|---|---|---|---|---|---|---|
| | **INDUSTRY 2076, VEGETABLE OIL MILLS, N.E.C.—Con.** | | | | | | | | |
| 1977 Census | 11 733 | 73 | 2 273 | 4.88 | 84 | 89 | 38 933 | 30 | 23.36 |
| 1976 ASM | 11 062 | 69 | 2 182 | 4.63 | 89 | 93 | 36 563 | 30 | 24.38 |
| 1975 ASM | 11 562 | 69 | 2 182 | 4.46 | 88 | 91 | 37 188 | 31 | 24.79 |
| 1974 ASM | 10 937 | 69 | 2 273 | 4.52 | 84 | 87 | 64 438 | 17 | 41.24 |
| 1973 ASM | 10 363 | 91 | 1 900 | 4.42 | 88 | 91 | 53 909 | 19 | 31.21 |
| 1972 Census | 9 656 | 75 | 2 111 | 4.11 | 87 | 91 | 37 333 | 26 | 23.58 |
| | **INDUSTRY 2077, ANIMAL AND MARINE FATS AND OILS** | | | | | | | | |
| 1987 Census | 20 942 | 60 | 2 065 | 8.71 | 58 | 70 | 73 097 | 29 | 58.82 |
| 1986 ASM | 20 703 | 55 | 1 898 | 10.21 | 61 | 74 | 58 860 | 35 | 56.78 |
| 1985 ASM | 21 072 | 62 | 1 584 | 9.41 | 65 | 78 | 54 919 | 38 | 46.89 |
| 1984 ASM | 18 510 | 67 | 1 707 | 8.69 | 69 | 80 | 53 285 | 35 | 46.50 |
| 1983 ASM | 20 149 | 66 | 2 127 | 8.35 | 66 | 78 | 58 888 | 34 | 41.73 |
| 1982 Census | 19 916 | 67 | 2 153 | 8.25 | 68 | 80 | 52 093 | 38 | 38.30 |
| 1981 ASM | 17 872 | 69 | 2 098 | 7.77 | 66 | 77 | 54 483 | 33 | 37.38 |
| 1980 ASM | 16 307 | 72 | 2 088 | 6.71 | 66 | 77 | 50 039 | 33 | 33.45 |
| 1979 ASM | 14 891 | 74 | 2 157 | 6.24 | 66 | 76 | 48 652 | 31 | 30.52 |
| 1978 ASM | 14 238 | 74 | 2 202 | 5.54 | 67 | 77 | 45 299 | 31 | 27.84 |
| 1977 Census | 13 806 | 70 | 2 207 | 5.41 | 66 | 76 | 47 081 | 29 | 30.41 |
| 1976 ASM | 12 758 | 71 | 2 089 | 5.41 | 64 | 74 | 43 589 | 29 | 29.59 |
| 1975 ASM | 12 225 | 68 | 2 158 | 5.36 | 65 | 78 | 34 432 | 36 | 23.30 |
| 1974 ASM | 11 960 | 70 | 2 225 | 4.92 | 68 | 77 | 43 049 | 28 | 27.79 |
| 1973 ASM | 11 078 | 72 | 2 272 | 4.06 | 60 | 71 | 42 516 | 26 | 26.04 |
| 1972 Census | 9 137 | 72 | 2 202 | 3.69 | 62 | 75 | 25 578 | 36 | 16.04 |
| | **INDUSTRY 2079, EDIBLE FATS AND OILS, N.E.C.** | | | | | | | | |
| 1987 Census | 27 237 | 71 | 2 076 | 12.22 | 70 | 76 | 135 495 | 20 | 91.58 |
| 1986 ASM | 25 259 | 69 | 2 014 | 11.51 | 73 | 79 | 124 038 | 20 | 88.97 |
| 1985 ASM | 24 747 | 70 | 2 040 | 11.04 | 78 | 83 | 111 252 | 22 | 77.80 |
| 1984 ASM | 23 789 | 72 | 2 024 | 10.56 | 78 | 82 | 113 272 | 21 | 77.79 |
| 1983 ASM | 23 353 | 70 | 2 049 | 10.33 | 75 | 81 | 103 414 | 23 | 72.27 |
| 1982 Census | 21 760 | 70 | 2 023 | 9.88 | 74 | 80 | 100 936 | 22 | 71.69 |
| 1981 ASM | 20 775 | 71 | 2 071 | 9.35 | 77 | 82 | 95 025 | 22 | 64.79 |
| 1980 ASM | 18 992 | 70 | 2 044 | 8.74 | 80 | 85 | 80 500 | 24 | 56.00 |
| 1979 ASM | 18 062 | 70 | 2 135 | 8.16 | 81 | 85 | 84 180 | 21 | 56.71 |
| 1978 ASM | 16 351 | 70 | 2 065 | 7.53 | 81 | 86 | 71 527 | 23 | 49.32 |
| 1977 Census | 15 000 | 71 | 2 078 | 6.73 | 82 | 87 | 54 472 | 28 | 38.99 |
| 1976 ASM | 13 084 | 72 | 2 097 | 5.86 | 80 | 85 | 56 462 | 23 | 37.64 |
| 1975 ASM | 12 503 | 71 | 2 099 | 5.64 | 83 | 87 | 51 496 | 24 | 34.78 |
| 1974 ASM | 11 664 | 70 | 2 109 | 5.29 | 85 | 88 | 54 137 | 22 | 36.56 |
| 1973 ASM | 11 052 | 71 | 2 137 | 4.86 | 80 | 85 | 46 594 | 24 | 30.53 |
| 1972 Census | 10 364 | 70 | 2 167 | 4.50 | 75 | 81 | 39 736 | 26 | 26.29 |

Note: For qualifications of data, see footnotes on table 1a.

## Table 2. Industry Statistics for Selected States: 1987 and 1982

[Excludes data for auxiliaries. States with 150 or more employees are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| Industry and geographic area | 1987 | | | | | | | | | | | 1982 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | All establishments | | All employees | | Production workers | | | | | | | |
| | E[1] | Total (no.) | With 20 employees or more (no.) | Number[2] (1,000) | Payroll (million dollars) | Number (1,000) | Hours (millions) | Wages (million dollars) | Value added by manufacture (million dollars) | Cost of materials (million dollars) | Value of shipments (million dollars) | New capital expenditures (million dollars) | All employees[2] (1,000) | Value added by manufacture (million dollars) |
| **INDUSTRY 2074, COTTONSEED OIL MILLS** | | | | | | | | | | | | | |
| **United States** | – | **52** | **40** | **2.8** | **44.8** | **2.0** | **4.5** | **26.8** | **106.9** | **378.8** | **470.7** | **12.2** | **5.2** | **202.9** |
| Arkansas | – | 3 | 3 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | BB | (D) |
| California | – | 4 | 2 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | .9 | 64.5 |
| Mississippi | – | 9 | 8 | BB | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | .5 | 15.4 |
| Texas | – | 17 | 13 | CC | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | 2.0 | 71.2 |

See footnotes at end of table.

# Table 2. Industry Statistics for Selected States: 1987 and 1982—Con.

[Excludes data for auxiliaries. States with 150 or more employees are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| Industry and geographic area | E[1] | 1987 | | | | | | | | | | | 1982 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | All establishments | | All employees | | Production workers | | | Value added by manufacture (million dollars) | Cost of materials (million dollars) | Value of shipments (million dollars) | New capital expenditures (million dollars) | All employees[2] (1,000) | Value added by manufacture (million dollars) |
| | | Total (no.) | With 20 employees or more (no.) | Number[2] (1,000) | Payroll (million dollars) | Number (1,000) | Hours (millions) | Wages (million dollars) | | | | | | |
| **INDUSTRY 2075, SOYBEAN OIL MILLS** | | | | | | | | | | | | | | |
| **United States** | - | **106** | **73** | **7.0** | **172.5** | **4.8** | **10.1** | **112.2** | **1 011.5** | **8 103.3** | **9 074.1** | **90.7** | **8.9** | **678.2** |
| Alabama | - | 3 | 3 | .4 | 9.1 | .3 | .6 | 4.9 | 56.5 | 297.8 | 351.9 | (D) | AA | (D) |
| Arkansas | - | 5 | 4 | .5 | 9.7 | .4 | .8 | 6.3 | 32.0 | 437.7 | 474.3 | (D) | .6 | 46.7 |
| Georgia | - | 3 | 2 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | BB | (D) |
| Illinois | - | 15 | 11 | 1.6 | 46.0 | 1.1 | 2.5 | 30.4 | 247.9 | 1 775.2 | 2 010.5 | 18.8 | 2.6 | 234.5 |
| Indiana | - | 4 | 4 | CC | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | BB | (D) |
| Iowa | - | 13 | 11 | CC | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | 1.1 | 109.8 |
| Kansas | - | 5 | 4 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | .3 | 23.8 |
| Kentucky | - | 2 | 2 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (NA) | (NA) |
| Maryland | - | 2 | 1 | BB | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (NA) | (NA) |
| Minnesota | - | 5 | 4 | .4 | 7.7 | .3 | .4 | 4.5 | 66.9 | 549.3 | 611.5 | (D) | .3 | 9.7 |
| Mississippi | - | 4 | 4 | BB | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | BB | (D) |
| Missouri | - | 5 | 4 | .3 | 7.2 | .2 | .5 | 4.8 | 62.1 | 394.7 | 456.0 | 6.1 | .3 | 12.6 |
| Nebraska | - | 3 | 2 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | AA | (D) |
| Ohio | - | 7 | 5 | .4 | 9.4 | .2 | .5 | 5.8 | 62.8 | 449.3 | 508.2 | (D) | .4 | 38.7 |
| Tennessee | - | 3 | 2 | BB | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | .6 | 80.3 |
| **INDUSTRY 2076, VEGETABLE OIL MILLS, N.E.C.** | | | | | | | | | | | | | | |
| **United States** | - | **23** | **15** | **.9** | **19.9** | **.5** | **1.1** | **11.4** | **82.7** | **353.3** | **431.5** | **4.9** | **1.3** | **80.0** |
| California | - | 5 | 3 | .3 | 7.3 | .1 | .2 | 3.4 | 20.2 | 97.1 | 106.6 | .8 | AA | (D) |
| Georgia | - | 3 | 3 | .2 | 3.2 | .2 | .3 | 2.2 | 3.0 | 30.5 | 37.5 | .4 | (NA) | (NA) |
| **INDUSTRY 2077, ANIMAL AND MARINE FATS AND OILS** | | | | | | | | | | | | | | |
| **United States** | - | **305** | **154** | **10.3** | **215.7** | **6.2** | **12.8** | **111.5** | **752.9** | **1 022.9** | **1 763.4** | **60.4** | **10.8** | **562.6** |
| Arkansas | - | 5 | 5 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | AA | (D) |
| California | - | 29 | 14 | CC | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | .8 | 65.6 |
| Colorado | - | 6 | 3 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | AA | (D) |
| Florida | E1 | 11 | 6 | .3 | 5.7 | .2 | .4 | 2.5 | 27.5 | 25.3 | 52.6 | 1.9 | BB | (D) |
| Georgia | - | 8 | 5 | .7 | 11.1 | .6 | 1.2 | 6.3 | 47.5 | 49.8 | 97.0 | 6.7 | .2 | 20.9 |
| Illinois | - | 12 | 6 | BB | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | .5 | 32.1 |
| Indiana | - | 10 | 8 | BB | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | BB | (D) |
| Iowa | E1 | 13 | 6 | BB | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | BB | (D) |
| Kansas | - | 9 | 4 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | AA | (D) |
| Louisiana | - | 8 | 7 | BB | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | .5 | 19.2 |
| Michigan | E1 | 7 | 4 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | BB | (D) |
| Minnesota | - | 9 | 5 | BB | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | BB | (D) |
| Mississippi | E1 | 7 | 5 | BB | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | AA | (D) |
| Missouri | - | 6 | 4 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | AA | (D) |
| Nebraska | - | 11 | 5 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | BB | (D) |
| New Jersey | - | 5 | 2 | BB | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | BB | (D) |
| North Carolina | E2 | 16 | 9 | EE | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | .7 | 26.4 |
| Ohio | - | 11 | 6 | BB | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | BB | (D) |
| Pennsylvania | - | 10 | 5 | BB | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | CC | (D) |
| Texas | E1 | 22 | 6 | CC | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | CC | (D) |
| Virginia | - | 10 | 6 | CC | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | CC | (D) |
| Wisconsin | - | 8 | 5 | .4 | 8.9 | .3 | .5 | 5.1 | 35.2 | 66.2 | 99.1 | (D) | BB | (D) |
| **INDUSTRY 2079, EDIBLE FATS AND OILS, N.E.C.** | | | | | | | | | | | | | | |
| **United States** | - | **100** | **74** | **9.3** | **253.3** | **6.6** | **13.7** | **167.4** | **1 260.1** | **2 886.3** | **4 151.1** | **86.2** | **12.5** | **1 261.7** |
| Arkansas | - | 1 | 1 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (NA) | (NA) |
| California | - | 20 | 13 | 1.0 | 28.0 | .8 | 1.5 | 20.4 | 207.3 | 288.3 | 501.9 | 7.0 | 1.4 | 159.4 |
| Georgia | - | 4 | 4 | .5 | 11.4 | .3 | .7 | 8.0 | 62.1 | 159.1 | 224.0 | 9.9 | BB | (D) |
| Illinois | - | 13 | 10 | 1.8 | 48.1 | 1.3 | 2.8 | 33.4 | 169.5 | 637.3 | 802.3 | (D) | 2.3 | 283.5 |
| Indiana | - | 1 | 1 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | BB | (D) |
| Louisiana | - | 1 | 1 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | AA | (D) |
| Michigan | - | 3 | 2 | BB | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | BB | (D) |
| Missouri | - | 4 | 2 | .2 | 3.2 | .1 | .2 | 1.8 | 13.7 | 35.3 | 48.8 | .4 | AA | (D) |
| New Jersey | - | 7 | 5 | CC | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | .5 | 17.1 |
| Ohio | - | 4 | 3 | CC | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | EE | (D) |
| Oregon | - | 3 | 2 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | .2 | 17.0 |
| South Carolina | E1 | 2 | 2 | AA | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (NA) | (NA) |
| Tennessee | - | 6 | 5 | CC | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | 1.0 | 67.2 |
| Texas | - | 8 | 7 | 1.0 | 26.2 | .7 | 1.4 | 16.4 | 142.2 | 236.5 | 376.8 | (D) | 1.3 | 122.3 |

See footnotes at end of table.

## Table 2. Industry Statistics for Selected States: 1987 and 1982—Con.

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 150 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: AA—150 to 249 employees; BB—250 to 499 employees; CC—500 to 999 employees; EE—1,000 to 2,499 employees; FF—2,500 employees or more.

## Table 3a. Summary Statistics for the Industry: 1987

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| Item | Cottonseed oil mills (SIC 2074) | Soybean oil mills (SIC 2075) | Vegetable oil mills, n.e.c. (SIC 2076) | Animal and marine fats and oils (SIC 2077) | Edible fats and oils, n.e.c. (SIC 2079) |
|---|---|---|---|---|---|
| Companies, number | 31 | 47 | 20 | 194 | 66 |
| All establishments, do. | 52 | 106 | 23 | 305 | 100 |
| With 1 to 19 employees, do. | 12 | 33 | 8 | 151 | 26 |
| With 20 to 99 employees, do. | 35 | 53 | 13 | 139 | 37 |
| With 100 employees or more, do. | 5 | 20 | 2 | 15 | 37 |
| Employment and labor costs: | | | | | |
| Employees, 1,000 | 2.6 | 7.0 | .9 | 10.3 | 9.3 |
| Compensation, total, mil dol. | 58.4 | 212.3 | 24.4 | 266.5 | 320.4 |
| Annual payroll, do. | 44.8 | 172.5 | 19.9 | 215.7 | 253.3 |
| Fringe benefits, do. | 13.5 | 39.8 | 4.5 | 50.8 | 67.1 |
| Social Security and other legally required payments, do. | 6.6 | 20.1 | 2.2 | 24.6 | 25.6 |
| Employer payments and other programs, do. | 6.9 | 19.7 | 2.3 | 26.1 | 41.5 |
| Production workers: | | | | | |
| Average for year, 1,000 | 2.0 | 4.8 | .5 | 6.2 | 6.6 |
| March, do. | 2.2 | 5.0 | .6 | 6.1 | 6.6 |
| May, do. | 1.8 | 4.8 | .5 | 6.2 | 6.4 |
| August, do. | 1.6 | 4.7 | .5 | 6.3 | 6.7 |
| November, do. | 2.5 | 4.7 | .6 | 6.2 | 6.8 |
| Hours, millions | 4.5 | 10.1 | 1.1 | 12.8 | 13.7 |
| January to March, do. | 1.2 | 2.6 | .3 | 3.0 | 3.4 |
| April to June, do. | .9 | 2.5 | .2 | 3.3 | 3.3 |
| July to September, do. | .9 | 2.5 | .3 | 3.2 | 3.4 |
| October to December, do. | 1.4 | 2.5 | .3 | 3.2 | 3.6 |
| Wages, mil dol. | 29.8 | 112.2 | 11.4 | 111.5 | 167.4 |
| Value added by manufacture, do. | 106.9 | 1 011.5 | 82.7 | 752.9 | 1 260.1 |
| Cost of materials[1], do. | 378.8 | 8 103.3 | 353.3 | 1 022.9 | 2 886.3 |
| Materials, parts, containers, etc., consumed[2], do. | 300.0 | 7 283.8 | 320.3 | 768.8 | 2 703.4 |
| Resales, do. | 48.6 | 649.3 | 21.9 | 123.7 | 103.7 |
| Fuels, do. | 8.3 | 94.0 | 4.5 | 79.8 | 44.5 |
| Purchased electricity, do. | 20.8 | 71.7 | 5.2 | 36.8 | 31.8 |
| Contract work, do. | 1.2 | 4.5 | 1.5 | 13.9 | 2.9 |
| Quantity of electric energy used for heat and power: | | | | | |
| Purchased, mil kWh | 410.8 | 1 641.5 | 101.5 | 680.8 | 599.4 |
| Generated less sold, do. | - | (D) | - | - | (D) |
| Total value of shipments, mil dol. | 470.7 | 9 074.1 | 431.5 | 1 763.4 | 4 151.1 |
| Primary products, do. | 402.6 | 7 554.1 | 351.6 | 1 535.0 | 3 618.6 |
| Secondary products, do. | 12.2 | 836.8 | 50.1 | 60.3 | 404.5 |
| Miscellaneous receipts, total, do. | 55.9 | 683.3 | 29.8 | 168.2 | 128.0 |
| Value of resales, do. | 55.5 | 661.9 | 22.5 | 149.4 | 114.2 |
| Contract receipts, do. | (D) | (D) | 4.7 | 12.8 | 3.4 |
| Other miscellaneous receipts, do. | (D) | (D) | 2.6 | 6.0 | 10.4 |
| Inventories by stage of fabrication: | | | | | |
| Beginning of 1987, mil dol. | 90.3 | 573.9 | 71.3 | 75.8 | 276.9 |
| Finished goods, do. | 36.7 | 247.5 | 33.3 | 59.3 | 94.0 |
| Work in process, do. | 7.8 | 28.0 | 7.9 | 1.9 | 96.9 |
| Materials and supplies, do. | 45.8 | 298.4 | 30.0 | 14.6 | 86.0 |
| End of 1987, do. | 145.8 | 928.8 | 81.5 | 88.7 | 281.1 |
| Finished goods, do. | 36.9 | 282.1 | 26.8 | 70.7 | 94.0 |
| Work in process, do. | 22.6 | 34.1 | 19.1 | 2.9 | 92.3 |
| Materials and supplies, do. | 86.2 | 612.7 | 35.7 | 15.2 | 94.8 |
| Primary product specialization ratio, percent | 97 | 90 | 88 | 96 | 90 |
| Coverage ratio, do. | 93 | 98 | 72 | 71 | 77 |

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

## Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1987

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| Item | Cottonseed oil mills (SIC 2074) | Soybean oil mills (SIC 2075) | Vegetable oil mills, n.e.c. (SIC 2076) | Animal and marine fats and oils (SIC 2077) | Edible fats and oils, n.e.c. (SIC 2079) |
|---|---|---|---|---|---|
| Gross book value of depreciable assets: | | | | | |
| Total: | | | | | |
| Beginning of year | 302.7 | 1 491.2 | 230.1 | 794.8 | 954.0 |
| New capital expenditures[1] | 12.2 | 90.7 | 4.9 | 60.4 | 86.2 |
| Used capital expenditures | .4 | 4.9 | .2 | 11.9 | 3.5 |
| Retirements | 4.3 | 14.8 | 6.2 | 30.5 | 29.5 |
| End of year | 311.0 | 1 572.0 | 229.0 | 836.7 | 1 015.3 |
| Buildings and other structures: | | | | | |
| Beginning of year | 62.5 | 303.0 | 46.3 | 190.6 | 160.6 |
| New capital expenditures | 2.3 | 13.9 | .1 | 6.6 | 10.9 |
| Used capital expenditures | .1 | .4 | .1 | 2.4 | .5 |
| Retirements | .8 | 1.3 | .7 | 4.1 | 2.0 |
| End of year | 64.1 | 316.0 | 45.9 | 195.5 | 170.0 |
| Machinery and equipment: | | | | | |
| Beginning of year | 240.1 | 1 188.2 | 183.8 | 604.2 | 793.4 |
| New capital expenditures[1] | 10.0 | 76.8 | 4.8 | 53.9 | 75.3 |
| Used capital expenditures | .3 | 4.5 | .1 | 9.5 | 3.0 |
| Retirements | 3.5 | 13.5 | 5.6 | 26.4 | 26.4 |
| End of year | 246.9 | 1 256.0 | 183.2 | 641.1 | 845.3 |
| Depreciation charges during 1987 | | | | | |
| Total | 19.0 | 96.9 | 13.7 | 83.4 | 58.0 |
| Buildings and other structures | 3.5 | 15.2 | 2.2 | 19.4 | 7.0 |
| Machinery and equipment | 15.6 | 81.6 | 11.5 | 64.1 | 51.0 |
| Rental payments: | | | | | |
| Total | 1.2 | 4.7 | 1.3 | 6.7 | 9.0 |
| Buildings and other structures | .1 | 1.3 | .2 | 2.9 | 2.9 |
| Machinery and equipment | 1.1 | 3.4 | 1.1 | 5.8 | 6.1 |

Note: Imputation rate for retirements and depreciation is typically higher than the "E" column indicates in tables 2 and 4.

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

## Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1987

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| Item | Cottonseed oil mills (SIC 2074) | | Soybean oil mills (SIC 2075) | | Vegetable oil mills, n.e.c. (SIC 2076) | | Animal and marine fats and oils (SIC 2077) | | Edible fats and oils, n.e.c. (SIC 2079) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Amount (million dollars) | Relative standard error of estimate[1] (percent) | Amount (million dollars) | Relative standard error of estimate[1] (percent) | Amount (million dollars) | Relative standard error of estimate[1] (percent) | Amount (million dollars) | Relative standard error of estimate[1] (percent) | Amount (million dollars) | Relative standard error of estimate[1] (percent) |
| Purchased services: | | | | | | | | | | |
| Cost of purchased services for the repair of– | | | | | | | | | | |
| Buildings and other structures | .3 | (X) | 3.8 | (X) | .5 | (X) | 6.0 | (X) | 2.9 | (X) |
| Response coverage ratio (percent)[2] | 83.4 | (X) | 79.9 | (X) | 50.9 | (X) | 60.3 | (X) | 75.1 | (X) |
| Machinery | 5.7 | (X) | 38.7 | (X) | 2.9 | (X) | 32.2 | (X) | 14.8 | (X) |
| Response coverage ratio (percent)[2] | 99.9 | (X) | 86.0 | (X) | 51.2 | (X) | 61.4 | (X) | 75.2 | (X) |
| Cost of purchased communication services | .4 | (X) | 5.9 | (X) | .3 | (X) | 2.7 | (X) | 3.2 | (X) |
| Response coverage ratio (percent)[2] | 65.5 | (X) | 90.1 | (X) | 48.6 | (X) | 64.1 | (X) | 73.2 | (X) |
| New machinery and equipment expenditures | 10.0 | (X) | 78.8 | (X) | 4.8 | (X) | 53.9 | (X) | 75.3 | (X) |
| Automobiles, trucks, etc. | .4 | 29 | .4 | 1 | .1 | 3 | 20.7 | 11 | 1.3 | 11 |
| Computers and peripheral | .2 | 21 | .8 | 1 | (Z) | 3 | .7 | 25 | 1.8 | 8 |
| All other | 9.3 | 3 | 75.6 | 1 | 4.8 | 1 | 32.4 | 8 | 72.2 | 1 |
| Adjustment ratio[3] | 1.0 | (X) | 1.0 | (X) | 1.3 | (X) | 1.1 | (X) | 1.2 | (X) |
| Cost of materials, components, parts, etc., used | 300.0 | (X) | 7 283.8 | (X) | 320.3 | (X) | 788.8 | (X) | 2 703.4 | (X) |
| Materials purchased or transferred from foreign sources[4] | – | 1 | .4 | 1 | 65.8 | 5 | 3.5 | 38 | 96.2 | 4 |
| Materials purchased or transferred from domestic sources | 300.0 | 1 | 7 283.4 | 1 | 254.4 | 2 | 785.2 | 1 | 2 607.3 | 1 |
| Adjustment ratio[3] | 1.2 | (X) | 1.0 | (X) | 1.2 | (X) | 1.3 | (X) | 1.5 | (X) |

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]Measure of extent to which respondents reported each item. Derived for each item by calculating the ratio of weighted employment for those sample establishments that reported the specific inquiry to total employment for all establishments classified in industry. (See appendixes for explanation of sample weight.)
[3]Data has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response to the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

# Table 4. Industry Statistics by Employment Size of Establishment: 1987

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| Industry and employment size class | E[1] | All establishments (no.) | All employees | | Production workers | | | Value added by manufacture (million dollars) | Cost of materials (million dollars) | Value of shipments (million dollars) | New capital expenditures (million dollars) | End-of-year inventories (million dollars) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Number (1,000) | Payroll (million dollars) | Number (1,000) | Hours (millions) | Wages (million dollars) | | | | | |
| **INDUSTRY 2074, COTTONSEED OIL MILLS[2]** | | | | | | | | | | | | |
| **Total** | - | **52** | **2.6** | **44.8** | **2.0** | **4.5** | **29.8** | **106.9** | **378.8** | **470.7** | **12.2** | **145.8** |
| Establishments with an average of— | | | | | | | | | | | | |
| 1 to 4 employees | E1 | 5 | (Z) | .4 | (Z) | (Z) | .2 | 5.8 | 11.4 | 19.0 | .1 | 1.6 |
| 5 to 9 employees | - | 2 | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) |
| 10 to 19 employees | E9 | 5 | .1 | 1.2 | (Z) | .1 | .7 | 2.2 | 6.8 | 9.0 | .2 | 2.4 |
| 20 to 49 employees | - | 16 | .6 | 9.1 | .5 | 1.0 | 5.8 | 14.8 | 57.1 | 69.3 | 1.7 | 21.9 |
| 50 to 99 employees | - | 19 | 1.3 | 20.3 | 1.1 | 2.3 | 14.3 | 52.4 | 172.3 | 210.5 | 5.6 | 63.0 |
| 100 to 249 employees | - | 5 | .7 | 13.9 | .5 | 1.0 | 8.8 | 31.7 | 131.4 | 162.9 | 4.6 | 56.9 |
| Covered by administrative records[3] | E9 | 6 | (Z) | .3 | (Z) | (Z) | .2 | .9 | 2.9 | 3.8 | .1 | .6 |
| **INDUSTRY 2075, SOYBEAN OIL MILLS** | | | | | | | | | | | | |
| **Total** | - | **106** | **7.0** | **172.5** | **4.8** | **10.1** | **112.2** | **1 011.5** | **8 103.3** | **9 074.1** | **90.7** | **928.8** |
| Establishments with an average of— | | | | | | | | | | | | |
| 1 to 4 employees | E9 | 17 | (Z) | .4 | (Z) | (Z) | .2 | 1.8 | 19.6 | 21.4 | .2 | 1.1 |
| 5 to 9 employees | E5 | 11 | .1 | .8 | (Z) | .1 | .5 | 4.0 | 49.9 | 54.0 | .6 | 1.4 |
| 10 to 19 employees | E6 | 5 | .1 | 1.4 | .1 | .1 | .9 | 12.5 | 53.4 | 65.5 | .4 | 2.2 |
| 20 to 49 employees | - | 23 | .9 | 23.5 | .6 | 1.4 | 16.0 | 121.5 | 1 532.5 | 1 657.1 | 12.0 | 131.2 |
| 50 to 99 employees | - | 30 | 2.1 | 49.3 | 1.4 | 3.0 | 33.2 | 355.6 | 3 223.1 | 3 588.0 | 34.0 | 261.2 |
| 100 to 249 employees | - | 16 | 2.5 | 62.5 | 1.8 | 3.7 | 40.1 | 395.0 | 2 247.5 | 2 617.8 | 30.6 | 291.9 |
| 250 to 499 employees | - | 4 | 1.2 | 34.7 | .8 | 1.8 | 21.5 | 121.0 | 977.4 | 1 090.3 | 13.1 | 239.8 |
| Covered by administrative records[3] | E9 | 26 | .1 | .8 | .1 | .1 | .5 | 3.8 | 42.3 | 48.1 | .4 | 2.4 |
| **INDUSTRY 2076, VEGETABLE OIL MILLS, N.E.C.** | | | | | | | | | | | | |
| **Total** | - | **23** | **.9** | **19.9** | **.5** | **1.1** | **11.4** | **82.7** | **353.3** | **431.5** | **4.9** | **81.5** |
| Establishments with an average of— | | | | | | | | | | | | |
| 1 to 4 employees | E9 | 5 | (Z) | .2 | (Z) | (Z) | (Z) | 1.0 | 4.3 | 5.3 | .1 | .3 |
| 5 to 9 employees | E3 | 2 | (Z) | .5 | (Z) | (Z) | .2 | 1.1 | 7.0 | 8.2 | .1 | .7 |
| 10 to 19 employees | - | 1 | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) |
| 20 to 49 employees | - | 10 | .4 | 8.4 | .2 | .5 | 4.8 | 29.5 | 155.6 | 188.3 | 2.2 | 34.7 |
| 50 to 99 employees | - | 3 | .5 | 10.8 | .3 | .6 | 6.4 | 51.1 | 186.5 | 229.7 | 2.6 | 45.7 |
| 100 to 249 employees | - | 2 | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) |
| Covered by administrative records[3] | E9 | 4 | (Z) | .1 | (Z) | (Z) | (Z) | .9 | 4.2 | 5.1 | .1 | .3 |
| **INDUSTRY 2077, ANIMAL AND MARINE FATS AND OILS** | | | | | | | | | | | | |
| **Total** | - | **305** | **10.3** | **215.7** | **6.2** | **12.8** | **111.5** | **752.9** | **1 022.9** | **1 783.4** | **50.4** | **98.7** |
| Establishments with an average of— | | | | | | | | | | | | |
| 1 to 4 employees | E8 | 40 | .1 | 1.5 | .1 | .1 | .7 | 4.6 | 7.7 | 12.3 | .1 | .3 |
| 5 to 9 employees | E3 | 38 | .3 | 4.9 | .2 | .3 | 2.5 | 15.3 | 43.5 | 59.1 | .4 | 1.5 |
| 10 to 19 employees | E2 | 73 | 1.0 | 20.7 | .6 | 1.3 | 10.4 | 82.7 | 114.3 | 196.1 | 2.9 | 5.6 |
| 20 to 49 employees | - | 93 | 3.0 | 64.4 | 1.7 | 3.7 | 34.5 | 225.5 | 380.0 | 611.6 | 18.0 | 30.8 |
| 50 to 99 employees | - | 46 | 3.1 | 72.8 | 1.7 | 3.9 | 34.4 | 279.4 | 277.5 | 551.2 | 26.4 | 27.1 |
| 100 to 249 employees | - | 13 | 2.8 | 51.5 | 1.9 | 3.4 | 28.9 | 145.5 | 191.0 | 333.1 | 12.6 | 23.4 |
| 250 to 499 employees | - | 1 | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) |
| 500 to 999 employees | - | 1 | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) |
| Covered by administrative records[3] | E9 | 68 | .4 | 5.7 | .2 | .4 | 2.7 | 16.6 | 26.8 | 45.4 | .5 | 1.1 |
| **INDUSTRY 2079, EDIBLE FATS AND OILS, N.E.C.** | | | | | | | | | | | | |
| **Total** | - | **100** | **9.3** | **253.3** | **6.6** | **13.7** | **167.4** | **1 260.1** | **2 886.3** | **4 151.1** | **86.2** | **281.1** |
| Establishments with an average of— | | | | | | | | | | | | |
| 1 to 4 employees | E9 | 5 | (Z) | .2 | (Z) | (Z) | .1 | 1.2 | 3.1 | 4.3 | .1 | .3 |
| 5 to 9 employees | E4 | 10 | .1 | 1.3 | .1 | .1 | .8 | 19.1 | 15.6 | 34.5 | .3 | 1.8 |
| 10 to 19 employees | E4 | 11 | .2 | 2.6 | .1 | .2 | 1.6 | 11.8 | 32.2 | 44.8 | .3 | 4.0 |
| 20 to 49 employees | E2 | 16 | .5 | 11.3 | .3 | .6 | 6.8 | 48.7 | 188.4 | 235.3 | 2.8 | 16.5 |
| 50 to 99 employees | - | 21 | 1.6 | 43.8 | 1.1 | 2.2 | 26.2 | 218.2 | 563.3 | 782.3 | 13.1 | 45.3 |
| 100 to 249 employees | - | 30 | 4.4 | 114.5 | 3.1 | 6.5 | 73.2 | 688.5 | 1 260.0 | 1 958.2 | 47.3 | 122.1 |
| 250 to 499 employees | - | 7 | 2.6 | 79.6 | 1.9 | 4.1 | 56.8 | 272.5 | 823.6 | 1 091.7 | 22.3 | 91.1 |
| Covered by administrative records[3] | E9 | 16 | .1 | 1.6 | .1 | .2 | 1.0 | 9.8 | 24.0 | 33.8 | .5 | 2.0 |

Note: For qualifications of data, see footnotes on table 1a. Data shown as a (D) are included in underscored figures above.

[1]Payroll and sales data for some small single unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single unit companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1987 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

## Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1987

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| Industry or product class code | Industry or primary product class | All establishments (number) | All employees | | Production workers | | | Value added by manufacture (million dollars) | Cost of materials (million dollars) | Value of shipments (million dollars) | New capital expenditures (million dollars) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Number (1,000) | Payroll (million dollars) | Number (1,000) | Hours (millions) | Wages (million dollars) | | | | |
| **2074** | **Cottonseed oil mills:** | | | | | | | | | | |
| | All establishments in industry | 52 | 2.6 | 44.8 | 2.0 | 4.5 | 29.8 | 106.9 | 378.8 | 470.7 | 12.2 |
| | Establishments with this product class primary: | | | | | | | | | | |
| 20741 | Cottonseed oil, crude | 10 | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) |
| 20742 | Cottonseed oil, once-refined | 4 | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) |
| 20744 | Cottonseed cake and meal and other byproducts | 29 | 1.8 | 30.5 | 1.5 | 3.4 | 21.3 | 82.5 | 240.2 | 308.4 | 9.8 |
| **2075** | **Soybean oil mills:** | | | | | | | | | | |
| | All establishments in industry | 106 | 7.0 | 172.5 | 4.8 | 10.1 | 112.2 | 1 011.5 | 8 103.3 | 9 074.1 | 90.7 |
| | Establishments with this product class primary: | | | | | | | | | | |
| 20751 | Soybean oil | 2 | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) |
| 20752 | Soybean cake, meal, and other byproducts | 77 | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) | (D) |
| **2076** | **Vegetable oil mills, n.e.c.:** | | | | | | | | | | |
| | All establishments in industry | 23 | .9 | 19.9 | .5 | 1.1 | 11.4 | 82.7 | 353.3 | 431.5 | 4.9 |
| | Establishments with this product class primary: | | | | | | | | | | |
| 20761 | Linseed oil | 4 | .2 | 4.1 | .1 | .2 | 2.7 | 14.2 | 119.6 | 145.5 | 2.2 |
| 20762 | Vegetable oils, n.e.c. | 8 | .4 | 10.2 | .3 | .6 | 5.5 | 51.0 | 165.3 | 207.0 | 2.1 |
| 20763 | Other vegetable oil mill products, n.e.c. | 4 | .1 | 3.9 | .1 | .2 | 2.1 | 12.6 | 61.2 | 68.8 | .5 |
| **2077** | **Animal and marine fats and oils:** | | | | | | | | | | |
| | All establishments in industry | 305 | 10.3 | 215.7 | 6.2 | 12.8 | 111.5 | 752.9 | 1 022.9 | 1 763.4 | 60.4 |
| | Establishments with this product class primary: | | | | | | | | | | |
| 20771 | Grease and inedible tallow | 92 | 4.2 | 101.1 | 2.2 | 4.8 | 47.0 | 365.2 | 387.3 | 745.5 | 26.4 |
| 20772 | Feed and fertilizer byproducts | 85 | 3.6 | 85.7 | 2.5 | 5.0 | 37.8 | 253.5 | 454.4 | 703.0 | 26.1 |
| 20773 | Animal and marine oil mill products | 21 | 1.4 | 28.2 | 1.0 | 1.9 | 18.4 | 84.8 | 85.8 | 169.1 | 5.5 |
| **2079** | **Edible fats and oils, n.e.c.:** | | | | | | | | | | |
| | All establishments in industry | 100 | 9.3 | 253.3 | 6.6 | 13.7 | 167.4 | 1 260.1 | 2 886.3 | 4 151.1 | 86.2 |
| | Establishments with this product class primary: | | | | | | | | | | |
| 20791 | Shortening and cooking oils | 56 | 6.8 | 193.8 | 4.7 | 9.9 | 123.9 | 777.5 | 2 336.6 | 3 118.7 | 66.5 |
| 20792 | Margarine | 21 | 2.2 | 54.1 | 1.7 | 3.5 | 40.1 | 452.1 | 479.8 | 931.8 | 18.4 |

Note: For qualifications of data, see footnotes on table 1a.

## Table 5b. Industry-Product Analysis—Value of Shipments and Primary Product Shipments and Specialization and Coverage Ratios for the Industry: 1987 and Earlier Census Years

[An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work. Columns A-D show this product pattern for an industry, and column E shows primary product specialization ratio. The extent to which an industry's primary products are shipped by establishments classified in and out of an industry is shown in columns F-H and coverage ratio is shown in column I. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

| Industry and product group code | Industry and census year | Value of shipments | | | | | Value of primary product shipments | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total (million dollars) | Primary products (million dollars) | Secondary products (million dollars) | Miscellaneous receipts (million dollars) | Primary product specialization ratio col. B÷ col. B+C (percent) | Total made in all industries (million dollars) | Made in this industry (million dollars) | Made in other industries (million dollars) | Coverage ratio col. B÷ col. F (percent) |
| | | A | B | C | D | E | F | G | H | I |
| 2074 | Cottonseed oil mills 1987 | 470.7 | 402.6 | 12.2 | 55.9 | 97 | 434.6 | 402.6 | 32.0 | 93 |
| | 1982 | 933.3 | 785.6 | 46.9 | 100.9 | 94 | 812.2 | 785.6 | 26.6 | 97 |
| | 1977 | 859.2 | 679.7 | 86.9 | 90.5 | 88 | 763.1 | 679.7 | 83.4 | 89 |
| 2075 | Soybean oil mills 1987 | 9 074.1 | 7 554.1 | 836.8 | 683.3 | 90 | 7 728.9 | 7 554.1 | 174.8 | 98 |
| | 1982 | 8 603.6 | 8 900.0 | 964.0 | 739.5 | 88 | 7 257.4 | 8 900.0 | 357.3 | 95 |
| | 1977 | 7 580.0 | 5 973.3 | 867.9 | 738.8 | 87 | 6 116.5 | 5 973.3 | 143.2 | 98 |
| 2076 | Vegetable oil mills, n.e.c. 1987 | 431.5 | 351.6 | 50.1 | 29.8 | 88 | 490.0 | 351.6 | 138.4 | 72 |
| | 1982 | 556.9 | 426.0 | 32.5 | 98.5 | 93 | 544.3 | 426.0 | 118.3 | 78 |
| | 1977 | 360.8 | 231.6 | 37.8 | 91.4 | 86 | 401.0 | 231.6 | 169.4 | 58 |
| 2077 | Animal and marine fats and oils 1987 | 1 763.4 | 1 535.0 | 60.3 | 168.2 | 96 | 2 148.2 | 1 535.0 | 613.2 | 71 |
| | 1982 | 1 752.5 | 1 593.7 | 48.9 | 109.8 | 97 | 2 337.1 | 1 593.7 | 743.4 | 68 |
| | 1977 | 1 655.0 | 1 440.8 | 91.2 | 123.0 | 94 | 2 102.2 | 1 440.8 | 661.4 | 68 |
| 2079 | Edible fats and oils, n.e.c. 1987 | 4 151.1 | 3 618.6 | 404.5 | 128.0 | 90 | 4 694.1 | 3 618.6 | 1 075.5 | 77 |
| | 1982 | 4 905.6 | 4 092.0 | 705.3 | 108.3 | 85 | 5 340.5 | 4 092.0 | 1 248.5 | 77 |
| | 1977 | 4 025.0 | 3 290.9 | 423.8 | 310.3 | 89 | 4 272.2 | 3 290.9 | 981.3 | 77 |

# Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For comparability of product classes and product codes between 1982 and 1987, see appendixes. For meaning of abbreviations and symbols, see introductory text]

| 1987 product code | Product | 1987 | | | | 1982 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number of companies with shipments of $100,000 or more | Quantity of production for all purposes | Product shipments[1] | | Number of companies with shipments of $100,000 or more | Quantity of production for all purposes | Product shipments[1] | |
| | | | | Quantity[2] | Value (million dollars) | | | Quantity[2] | Value (million dollars) |
| **2074– —** | **COTTONSEED OIL MILLS** | | | | | | | | |
| | **Total** | **(NA)** | **(X)** | **(X)** | **434.6** | **(NA)** | **(X)** | **(X)** | **812.2** |
| 20741 — | Cottonseed oil, crude: | | | | | | | | |
| 20741 00 | Cottonseed oil, crude ..... mil lb.. | 17 | 577.5 | 495.6 | 89.3 | 24 | 1 545.2 | 746.7 | 150.2 |
| 20742 — | Cottonseed oil, once-refined: | | | | | | | | |
| 20742 00 | Cottonseed oil, once-refined (after alkali or caustic wash but before deodorizing or use in end products) ..... mil lb.. | 15 | 444.1 | 407.0 | 80.6 | 18 | 1 272.6 | 983.6 | 219.7 |
| 20743 — | Cotton linters: | | | | | | | | |
| 20743 00 | Cotton linters ..... mil lb.. | 23 | 421.3 | 411.9 | 46.9 | 33 | 783.2 | 722.4 | 70.0 |
| 20744 — | Cottonseed cake and meal and other byproducts ..... | (NA) | (X) | (X) | 204.1 | (NA) | (X) | (X) | 360.1 |
| 20744 14 | Cottonseed cake and meal ..... 1,000 s tons.. | 25 | 1 229.4 | 1 244.3 | 166.5 | 35 | 2 219.4 | 2 205.4 | 315.5 |
| 20744 51 | Hulls ..... do.. | 24 | 639.4 | 627.7 | 31.0 | 31 | 1 313.6 | 1 318.8 | 37.0 |
| 20744 98 | Other cottonseed byproducts ..... mil lb.. | 2 | (X) | (D) | (D) | 8 | (X) | 182.6 | 7.6 |
| 20744 99 | Cottonseed oil, once-refined, purchased and deodorized only ..... do.. | 2 | (X) | (D) | (D) | (NA) | (X) | (X) | (*) |
| 20744 00 | Cottonseed cake and meal and other byproducts, n.s.k. ..... | (NA) | (X) | (X) | (D) | (NA) | (X) | (X) | - |
| 20740 — | Cottonseed oil mill products, n.s.k. ..... | (NA) | (X) | (X) | 13.7 | (NA) | (X) | (X) | 312.1 |
| 20740 00 | Cottonseed oil mill products, n.s.k., typically for establishments with 20 employees or more (see note) ..... | (NA) | (X) | (X) | 10.3 | (NA) | (X) | (X) | 306.1 |
| 20740 02 | Cottonseed oil mill products, n.s.k., typically for establishments with less than 20 employees (see note) ..... | (NA) | (X) | (X) | 3.5 | (NA) | (X) | (X) | 6.0 |
| **2075– —** | **SOYBEAN OIL MILLS** | | | | | | | | |
| | **Total** ..... | **(NA)** | **(X)** | **(X)** | **7 738.9** | **(NA)** | **(X)** | **(X)** | **7 257.4** |
| 20751 — | Soybean oil ..... | (NA) | (X) | (X) | 2 323.4 | (NA) | (X) | (X) | 2 375.4 |
| 20751 13 | Soybean oil, crude: Degummed ..... mil lb.. | 16 | 3 935.5 | 2 654.2 | 437.3 | 20 | 4 486.9 | 4 079.4 | 799.2 |
| 20751 15 | Not degummed ..... do.. | 10 | 7 301.0 | 7 241.2 | 1 183.2 | 14 | 5 638.4 | 5 322.7 | 1 025.3 |
| 20751 21 | Soybean oil, once-refined (after alkali or caustic wash but before deodorizing or use in end products) ..... do.. | 12 | 5 336.7 | 3 294.1 | 599.2 | 13 | 9 060.2 | 2 435.6 | 547.5 |
| 20751 31 | Soybean oil processed for inedible purposes (acid refined, etc.) ..... do.. | 4 | (X) | 31.2 | 3.7 | 2 | (X) | (X) | (D) |
| 20751 00 | Soybean oil, n.s.k. ..... | (NA) | (X) | (X) | - | (NA) | (X) | (X) | (D) |
| 20752 — | Soybean cake, meal, and other byproducts ..... | (NA) | (X) | (X) | 5 359.8 | (NA) | (X) | (X) | 4 836.2 |
| 20752 11 | Meal ..... 1,000 s tons.. | 18 | 26 385.6 | 26 450.8 | 4 962.9 | 24 | 23 969.1 | 23 485.5 | 4 539.3 |
| 20752 31 | Soy flour and grits ..... mil lb.. | 6 | (X) | (D) | (D) | 6 | (X) | (D) | (D) |
| 20752 32 | Concentrates ..... do.. | 1 | (X) | (D) | (D) | 3 | (X) | (D) | (D) |
| 20752 51 | Lecithin ..... do.. | 7 | 93.3 | 109.4 | 36.0 | 7 | 42.2 | 42.4 | 18.3 |
| 20752 61 | Millfeed (hullmeal) ..... 1,000 s tons.. | 10 | 1 219.8 | 1 043.3 | 64.3 | 15 | 816.7 | 800.1 | 99.7 |
| 20752 98 | Other soybean products, including isolates ..... mil lb.. | 9 | (X) | 237.9 | 120.5 | 10 | (X) | 218.7 | 95.6 |
| 20752 99 | Soybean oil, once-refined, purchased and deodorized only ..... do.. | 5 | (X) | 330.1 | 91.0 | (NA) | (X) | (X) | (*) |
| 20752 00 | Soybean cake, meal, and other byproducts, n.s.k. ..... | (NA) | (X) | (X) | (Z) | (NA) | (X) | (X) | 2.2 |
| 20750 — | Soybean oil mill products, n.s.k. ..... | (NA) | (X) | (X) | 46.0 | (NA) | (X) | (X) | 145.7 |
| 20750 00 | Soybean oil mill products, n.s.k., typically for establishments with 5 employees or more (see note) ..... | (NA) | (X) | (X) | 3.1 | (NA) | (X) | (X) | (D) |
| 20750 02 | Soybean oil mill products, n.s.k., typically for establishments with less than 5 employees (see note) ..... | (NA) | (X) | (X) | 42.9 | (NA) | (X) | (X) | (D) |
| **2076– —** | **VEGETABLE OIL MILLS, N.E.C.** | | | | | | | | |
| | **Total** ..... | **(NA)** | **(X)** | **(X)** | **490.0** | **(NA)** | **(X)** | **(X)** | **544.3** |
| 20761 — | Linseed oil ..... | (NA) | (X) | (X) | 104.9 | (NA) | (X) | (X) | 84.1 |
| 20761 13 | Linseed oil, raw and boiled ..... mil lb.. | 5 | 245.0 | 254.9 | 49.1 | 4 | 141.2 | 116.1 | 29.1 |
| 20761 33 | Linseed oil, processed (refined, blown, heat treated, or chemically modified) ..... do.. | 6 | 154.8 | 226.3 | 53.9 | 5 | 154.9 | 166.4 | 55.0 |
| 20761 00 | Linseed oil, n.s.k. ..... | (NA) | (X) | (X) | 1.9 | (NA) | (X) | (X) | - |
| 20762 — | Vegetable oils other than corn, cottonseed, soybean, and linseed ..... | (NA) | (X) | (X) | 218.0 | (NA) | (X) | (X) | 372.1 |
| 20762 23 | Coconut oil, once-refined (after alkali or caustic wash but before deodorizing or use in end products) ..... mil lb.. | 5 | 226.9 | 149.8 | 34.4 | 9 | 767.0 | 406.6 | 117.2 |
| 20762 52 | Peanut oil: Peanut oil, crude ..... mil lb.. | 8 | 143.0 | 145.4 | 34.7 | 6 | 157.6 | 104.6 | 28.4 |
| 20762 57 | Peanut oil, once-refined (after alkali or caustic wash but before deodorizing or use in end products) ..... do.. | 4 | (D) | (D) | (D) | 3 | 135.7 | (D) | (D) |
| 20762 62 | Sunflower oil: Sunflower seed oil, crude ..... mil lb.. | 2 | (D) | (D) | (D) | 6 | 295.2 | 300.7 | 69.8 |
| 20762 63 | Sunflower seed oil, once-refined (after alkali or caustic wash but before deodorizing or use in end products) ..... do.. | 4 | (D) | (D) | (D) | 7 | (D) | 105.3 | 27.4 |
| 20762 84 | Other vegetable oils, including safflower oil, castor oil, tung oil, etc.: Crude ..... mil lb.. | 4 | (D) | (D) | (D) | 5 | (D) | (D) | (D) |
| 20762 85 | Once-refined (after alkali or caustic wash but before deodorizing or use in end products): Palm ..... mil lb.. | 4 | 137.0 | 135.6 | 28.3 | 4 | (D) | (D) | (D) |
| 20762 88 | Other oils ..... do.. | 4 | 63.4 | 43.2 | 15.3 | 10 | (D) | 206.2 | 65.3 |
| 20762 73 | Processed for inedible purposes (tung oil, dehydrated castor oil, etc.) ..... do.. | 3 | (X) | (D) | (D) | 2 | (X) | (D) | (D) |
| 20762 00 | Vegetable oils, other than corn, cottonseed, soybean, and linseed, n.s.k. ..... | (NA) | (X) | (X) | 5.3 | (NA) | (X) | (X) | 2.4 |

See footnotes at end of table.

# Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For comparability of product classes and product codes between 1982 and 1987, see appendixes. For meaning of abbreviations and symbols, see introductory text]

| 1987 product code | Product | 1987 | | | | 1982 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number of companies with shipments of $100,000 or more | Quantity of production for all purposes | Product shipments[1] | | Number of companies with shipments of $100,000 or more | Quantity of production for all purposes | Product shipments[1] | |
| | | | | Quantity[2] | Value (million dollars) | | | Quantity[2] | Value (million dollars) |
| **2076- —** | **VEGETABLE OIL MILLS, N.E.C.**—Con. | | | | | | | | |
| 20763 — | Other vegetable oil mill products, except cottonseed and soybean | (NA) | (X) | (X) | 159.2 | (NA) | (X) | (X) | 84.6 |
| | Cake and meal: | | | | | | | | |
| 20763 11 | Linseed, 1,000 s tons | 4 | (D) | (D) | (D) | 3 | 148.1 | 173.5 | 25.0 |
| 20763 51 | Peanut, do | 7 | 139.1 | 147.5 | 12.3 | 7 | 144.4 | 145.0 | 26.7 |
| 20763 61 | Sunflower seed, do | 2 | (D) | (D) | (D) | 7 | 228.5 | 230.0 | 23.3 |
| 20763 97 | Other oil seed, do | 5 | (D) | (D) | (D) | 5 | (D) | 63.1 | 8.6 |
| | Oil: | | | | | | | | |
| 20763 94 | Coconut oil, once-refined, purchased and deodorized only, mil lb | 2 | | | | | | | |
| 20763 95 | Peanut oil, once-refined, purchased and deodorized only, do | 2 | | | | | | | |
| 20763 96 | Sunflower oil, once-refined, purchased and deodorized only, do | 1 | (X) | 180.9 | 56.5 | (NA) | (X) | (X) | (9) |
| 20763 91 | Palm oil, once-refined, purchased and deodorized only, do | 2 | | | | | | | |
| 20763 98 | Other oils, once-refined, except cottonseed, soybean, linseed, peanut, or sunflower, purchased and deodorized only, do | 4 | | | | | | | |
| 20763 00 | Other vegetable oil mill products, except cottonseed and soybean, n.s.k. | (NA) | (X) | (X) | (D) | (NA) | (X) | (X) | 1.1 |
| 20760 — | Vegetable oil mill products, n.e.c., n.s.k. | (NA) | (X) | (X) | 7.8 | (NA) | (X) | (X) | 93.3 |
| 20760 00 | Vegetable oil mill products, n.e.c., n.s.k., typically for establishments with 10 employees or more (see note) | (NA) | (X) | (X) | 3.0 | (NA) | (X) | (X) | 8.7 |
| 20760 02 | Vegetable oil mill products, n.e.c., n.s.k., typically for establishments with less than 10 employees (see note) | (NA) | (X) | (X) | 4.8 | (NA) | (X) | (X) | 2.8 |
| **2077- —** | **ANIMAL AND MARINE FATS AND OILS** | | | | | | | | |
| | **Total** | **(NA)** | **(X)** | **(X)** | **2 147.2** | **(NA)** | **(X)** | **(X)** | **2 337.1** |
| 20771 — | Grease and inedible tallow | (NA) | (X) | (X) | 754.2 | (NA) | (X) | (X) | 936.0 |
| 20771 11 | Inedible tallow, including inedible animal stearin, mil lb | 88 | 3 893.8 | 3 719.2 | 521.0 | 149 | 3 870.1 | 3 965.9 | 660.1 |
| 20771 13 | Grease, other than wool grease, do | 58 | 1 971.5 | 1 802.6 | 215.4 | 87 | 1 224.2 | 1 212.7 | 187.9 |
| 20771 00 | Grease and inedible tallow, n.s.k. | (NA) | (X) | (X) | 17.8 | (NA) | (X) | (X) | 70.0 |
| 20772 — | Feed and fertilizer byproducts | (NA) | (X) | (X) | 1 045.1 | (NA) | (X) | (X) | 1 093.5 |
| 20772 11 | Meat and bone meal, mil lb | 81 | 3 894.4 | 3 942.6 | 497.5 | 119 | 2 667.8 | 2 767.4 | 503.1 |
| 20772 12 | Dry rendered tankage, do | 36 | 453.0 | 464.0 | 57.2 | 69 | 700.0 | *743.8 | 141.7 |
| 20772 37 | Feather meal, do | 17 | 430.1 | 437.5 | 44.3 | 24 | 188.4 | 186.2 | 38.9 |
| 20772 98 | Other feed and fertilizer byproducts, including dried blood, poultry fat and byproducts, meal, and raw products for pet food, do | 61 | 2 819.3 | 2 863.1 | 326.2 | 71 | 1 005.6 | 1 013.1 | 243.1 |
| 20772 00 | Feed and fertilizer byproducts, n.s.k. | (NA) | (X) | (X) | 119.8 | (NA) | (X) | (X) | 166.5 |
| 20773 — | Animal and marine oil mill products, including foots | (NA) | (X) | (X) | 195.6 | (NA) | (X) | (X) | 205.4 |
| 20773 11 | Foots, animal, vegetable, and fish, and acidulated soap stock | 12 | (X) | (X) | 24.4 | 16 | (X) | (X) | 55.8 |
| 20773 46 | Animal oil mill products, including all other animal oils, except fatty acids, mil lb | 7 | (X) | 168.7 | 21.5 | 2 | (D) | (D) | (D) |
| | Marine animal oil products: | | | | | | | | |
| 20773 61 | Fish and marine animal oil, mil lb | 8 | (X) | 193.2 | 33.0 | 12 | 298.8 | 292.8 | 48.2 |
| 20773 66 | Fish scrap and meal, do | 20 | (X) | 454.4 | 89.4 | 21 | 333.9 | 319.8 | 96.3 |
| 20773 79 | Other fish and marine animal oil products, do | 2 | (X) | (D) | (D) | 4 | 32.2 | 30.4 | 1.7 |
| 20773 00 | Animal and marine oil mill products, including foots, n.s.k. | (NA) | (X) | (X) | (D) | (NA) | (X) | (X) | (D) |
| 20770 — | Animal and marine fats and oils, n.s.k. | (NA) | (X) | (X) | 152.3 | (NA) | (X) | (X) | 100.2 |
| 20770 00 | Animal and marine fats and oils, n.s.k., typically for establishments with 10 employees or more (see note) | (NA) | (X) | (X) | 108.0 | (NA) | (X) | (X) | 65.9 |
| 20770 02 | Animal and marine fats and oils, n.s.k., typically for establishments with less than 10 employees (see note) | (NA) | (X) | (X) | 44.3 | (NA) | (X) | (X) | 34.3 |
| **2079- —** | **EDIBLE FATS AND OILS, N.E.C.** | | | | | | | | |
| | **Total** | **(NA)** | **(X)** | **(X)** | **4 694.1** | **(NA)** | **(X)** | **(X)** | **5 340.5** |
| 20791 — | Shortening and cooking oils | (NA) | (X) | (X) | 3 427.2 | (NA) | (X) | (X) | 4 028.6 |
| | Baking or frying fats (shortening): | | | | | | | | |
| 20791 13 | 100 percent vegetable oil, mil lb | 28 | 5 200.0 | 4 950.6 | 1 515.4 | 35 | 3 536.5 | 3 481.4 | 1 403.2 |
| 20791 15 | 100 percent animal fat or blends of vegetable oil and animal fat, do | 25 | 1 558.0 | 1 558.3 | 370.6 | 29 | 1 486.7 | 1 523.4 | 468.2 |
| 20791 42 | Hydrogenated oils other than baking or frying fats (for confectionery fats, mellorine fats, whipped topping, etc.), do | 6 | (X) | (D) | (D) | 4 | (D) | (D) | (D) |
| | Salad or cooking oil (fully-refined and deodorized oil produced at the same establishment): | | | | | | | | |
| | Soybean cooking or salad oil: | | | | | | | | |
| 20791 51 | Partially hydrogenated, mil lb | 25 | 1 602.1 | 1 554.7 | 459.5 | 26 | 3 792.0 | 3 593.4 | 1 132.8 |
| 20791 52 | Other, do | 10 | 1 013.7 | 999.3 | 280.6 | 14 | 509.5 | 507.0 | 165.5 |
| 20791 53 | Cottonseed cooking or salad oil, do | 6 | 144.5 | 162.7 | 50.0 | 14 | 396.4 | 394.9 | 138.3 |
| 20791 54 | Mixtures of vegetable cooking or salad oil, do | 7 | (D) | (D) | (D) | 14 | 260.1 | 284.3 | 105.8 |
| 20791 59 | All other cooking or salad oil, do | 19 | 672.7 | 660.3 | 231.2 | 27 | 780.3 | 711.3 | 336.9 |
| 20791 71 | Vegetable oil winter stearin, do | 2 | (X) | (D) | (D) | 5 | (X) | 85.4 | 26.9 |
| 20791 81 | Margarine oil, except corn, do | 6 | (X) | 466.8 | 106.5 | 6 | (X) | 750.7 | 196.1 |
| 20791 98 | All other fully-refined oils, except corn, do | 8 | (X) | 242.5 | 72.5 | 8 | (X) | (D) | (D) |
| 20791 00 | Shortening and cooking oils, n.s.k. | (NA) | (X) | (X) | 8.1 | (NA) | (X) | (X) | 13.8 |
| 20792 — | Margarine | 22 | 2 189.8 | 2 247.6 | 1 197.5 | 27 | 2 778.0 | 2 857.4 | 1 225.1 |
| 20792 00 | Margarine, including butter blends, mil lb | | | | | | | | |

See footnotes at end of table.

## Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For comparability of product classes and product codes between 1982 and 1987, see appendixes. For meaning of abbreviations and symbols, see introductory text]

| 1987 product code | Product | 1987 | | | | 1982 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number of companies with shipments of $100,000 or more | Quantity of production for all purposes | Product shipments[1] | | Number of companies with shipments of $100,000 or more | Quantity of production for all purposes | Product shipments[1] | |
| | | | | Quantity[2] | Value (million dollars) | | | Quantity[2] | Value (million dollars) |
| **2079- —** | **EDIBLE FATS AND OILS, N.E.C.**—Con. | | | | | | | | |
| 20790 — | Edible fats and oils, n.e.c., n.s.k. | (NA) | (X) | (X) | 99.4 | (NA) | (X) | (X) | 86.8 |
| 20790 00 | Edible fats and oils, n.e.c., n.s.k., typically for establishments with 20 employees or more (see note) | (NA) | (X) | (X) | 66.7 | (NA) | (X) | (X) | 81.5 |
| 20790 02 | Edible fats and oils, n.e.c., n.s.k., typically for establishments with less than 20 employees (see note) | (NA) | (X) | (X) | 32.7 | (NA) | (X) | (X) | 5.3 |

Note: In 1987 Census of Manufactures, data for establishments of small single-unit companies with up to 20 employees were estimated from administrative-record data rather than data actually collected from respondents. Employment cutoffs used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1987 and 1982 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1982, data for product code 20744 99 were included with data for product code 20740 00.
[4]For 1982, data for product code 20752 99 were included with data for product code 20750 00.
[5]For 1982, data for product codes 20763 94 through 20763 98 were included with data for product code 20760 00.

## Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1987 and 1982

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1987. For meaning of abbreviations and symbols, see introductory text. For comparability of product classes and product codes between 1982 and 1987 and explanation of terms, see appendixes]

| Product class and geographic area | 1987 value of product shipments | 1982 value of product shipments |
|---|---|---|
| **20741, COTTONSEED OIL, CRUDE** | | |
| **United States** | **89.3** | **150.2** |
| Arkansas | 13.8 | 20.3 |
| Mississippi | 20.5 | 33.8 |
| Texas | 22.1 | 45.1 |
| **20742, COTTONSEED OIL, ONCE-REFINED** | | |
| **United States** | **80.6** | **219.7** |
| California | 19.2 | 48.0 |
| Texas | 35.5 | 94.8 |
| **20743, COTTON LINTERS** | | |
| **United States** | **46.9** | **76.0** |
| Arkansas | 4.6 | 4.2 |
| California | 7.5 | 16.3 |
| Mississippi | 7.3 | 5.1 |
| Texas | 14.8 | 23.6 |
| **20744, COTTONSEED CAKE AND MEAL AND OTHER BYPRODUCTS** | | |
| **United States** | **204.1** | **360.1** |
| Arkansas | 17.4 | 24.8 |
| California | 31.6 | 77.7 |
| Mississippi | 27.1 | 39.6 |
| Tennessee | 10.2 | (NA) |
| Texas | 77.2 | 144.9 |
| **20751, SOYBEAN OIL** | | |
| **United States** | **2 323.4** | **2 375.4** |
| Arkansas | 75.0 | 77.9 |
| Illinois | 560.5 | 646.7 |
| Indiana | 75.3 | 80.8 |
| Iowa | 328.2 | 346.8 |
| Kansas | 88.5 | 85.8 |
| Minnesota | 232.7 | 128.5 |
| Ohio | 100.7 | 167.5 |
| South Carolina | 42.8 | 49.7 |
| **20752, SOYBEAN CAKE, MEAL, AND OTHER BYPRODUCTS** | | |
| **United States** | **5 359.6** | **4 836.2** |
| Alabama | 229.6 | (NA) |
| Arkansas | 267.9 | 251.0 |
| Illinois | 1 173.9 | 1 114.4 |
| Indiana | 308.7 | 239.7 |
| Iowa | 782.7 | 756.6 |
| Kansas | 200.4 | 182.2 |
| Minnesota | 343.8 | 306.9 |
| Missouri | 297.3 | 230.3 |
| Ohio | 313.2 | 275.8 |
| South Carolina | 105.1 | 107.3 |
| Tennessee | 206.3 | 238.5 |
| **20761, LINSEED OIL** | | |
| **United States** | **104.9** | **84.1** |
| Minnesota | 61.3 | 77.2 |
| **20762, VEGETABLE OILS, N.E.C.** | | |
| **United States** | **218.0** | **372.1** |
| California | 30.1 | 102.3 |
| New Jersey | 20.9 | (NA) |
| **20763, OTHER VEGETABLE OIL MILL PRODUCTS, N.E.C.** | | |
| **United States** | **159.2** | **84.8** |
| **20771, GREASE AND INEDIBLE TALLOW** | | |
| **United States** | **754.2** | **938.0** |
| Arizona | 8.3 | 10.0 |
| California | 58.0 | 87.7 |
| Colorado | 30.4 | 23.6 |
| Florida | 21.3 | 25.7 |
| Georgia | 10.0 | 10.9 |

## Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1987 and 1982—Con.

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1987. For meaning of abbreviations and symbols, see introductory text. For comparability of product classes and product codes between 1982 and 1987 and explanation of terms, see appendixes]

| Product class and geographic area | 1987 value of product shipments | 1982 value of product shipments |
|---|---|---|
| **20771, GREASE AND INEDIBLE TALLOW—Con.** | | |
| Illinois | 26.6 | 63.8 |
| Indiana | 22.1 | 16.5 |
| Iowa | 74.5 | 67.0 |
| Kansas | 39.3 | 53.0 |
| Minnesota | 24.8 | 27.9 |
| Missouri | 8.0 | 17.8 |
| Nebraska | 59.0 | 67.8 |
| Ohio | 23.8 | 33.0 |
| Pennsylvania | 25.2 | 40.7 |
| Tennessee | 4.3 | 16.6 |
| Texas | 54.0 | 81.6 |
| Washington | 13.6 | 19.5 |
| Wisconsin | 29.4 | 33.8 |
| **20772, FEED AND FERTILIZER BYPRODUCTS** | | |
| **United States** | **1 045.1** | **1 093.5** |
| Alabama | 28.9 | 18.7 |
| Arizona | 4.4 | (NA) |
| Arkansas | 37.4 | 24.0 |
| California | 94.2 | 62.3 |
| Colorado | 24.7 | 16.9 |
| Florida | 14.8 | 13.6 |
| Georgia | 81.0 | 105.7 |
| Idaho | 6.9 | 5.1 |
| Illinois | 63.0 | 55.3 |
| Indiana | 23.3 | 17.3 |
| Iowa | 43.3 | 66.6 |
| Kansas | 88.8 | 55.0 |
| Michigan | 15.0 | 24.1 |
| Minnesota | 35.7 | 37.4 |
| Mississippi | 27.0 | 23.6 |
| Missouri | 26.3 | 29.2 |
| Nebraska | 42.3 | 68.2 |
| North Carolina | 59.7 | 55.2 |
| Ohio | 8.8 | 24.8 |
| Pennsylvania | 47.2 | 45.9 |
| South Carolina | 3.4 | 3.4 |
| Tennessee | 23.4 | 23.3 |
| Texas | 56.1 | 74.2 |
| Virginia | 32.6 | 54.5 |
| Washington | 10.4 | 13.4 |
| Wisconsin | 49.5 | 65.5 |
| **20773, ANIMAL AND MARINE OIL MILL PRODUCTS** | | |
| **United States** | **195.6** | **205.4** |
| California | 3.9 | 11.4 |
| Illinois | 17.3 | 7.9 |
| Louisiana | 55.6 | 72.2 |
| Mississippi | 24.4 | 17.2 |
| North Carolina | 10.7 | 12.4 |
| Ohio | 9.8 | (NA) |
| Tennessee | 7.4 | 19.7 |
| **20791, SHORTENING AND COOKING OILS** | | |
| **United States** | **3 427.2** | **4 028.6** |
| California | 179.3 | 432.8 |
| Georgia | 234.4 | 257.0 |
| Illinois | 704.8 | 931.3 |
| Kansas | 84.7 | (NA) |
| Missouri | 89.4 | (NA) |
| New Jersey | 149.8 | 149.3 |
| Tennessee | 436.7 | 406.2 |
| Texas | 284.7 | 284.0 |
| **20792, MARGARINE** | | |
| **United States** | **1 167.5** | **1 225.1** |
| California | 263.1 | 142.8 |
| Ohio | 55.4 | (NA) |
| Texas | 141.4 | 154.3 |

## Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1987 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For comparability of product classes and product codes between 1982 and 1987 and explanation of terms, see appendixes]

| 1987 product code | Product class | 1987 | 1986[1] | 1985[1] | 1984[1] | 1983[1] | 1982 | 1977 | 1972 |
|---|---|---|---|---|---|---|---|---|---|
| **2074-** | **Cottonseed oil mills** | **434.6** | **532.9** | **736.8** | **781.1** | **667.6** | **812.2** | **763.1** | **410.7** |
| 20741 | Cottonseed oil, crude | 89.3 | 87.2 | 153.2 | 135.2 | 119.9 | 150.2 | 146.6 | 125.9 |
| 20742 | Cottonseed oil, once-refined | 80.6 | 147.2 | 190.0 | 186.7 | 152.7 | 219.7 | 236.5 | 73.4 |
| 20743 | Cotton linters | 48.9 | 54.1 | 96.7 | 110.2 | 65.0 | 70.0 | 43.4 | 29.2 |
| 20744 | Cottonseed cake and meal and other byproducts | 204.1 | 239.0 | 289.7 | 328.1 | 324.6 | 360.1 | 323.9 | 175.0 |
| 20740 | Cottonseed oil mill products, n.s.k. | 13.7 | 5.2 | 7.2 | 21.0 | 5.3 | 12.1 | 12.6 | 7.2 |
| **2075-** | **Soybean oil mills** | **7 728.9** | **6 791.0** | **7 337.0** | **8 780.0** | **7 748.3** | **7 257.4** | **6 118.5** | **2 852.1** |
| 20751 | Soybean oil | 2 323.4 | 2 336.0 | 3 538.3 | 3 831.7 | 2 439.0 | 2 375.4 | 2 070.1 | 802.2 |
| 20752 | Soybean cake, meal, and other byproducts | 5 359.6 | 4 365.4 | 3 720.4 | 4 891.3 | 5 269.1 | 4 836.2 | 4 016.7 | 1 844.1 |
| 20750 | Soybean oil mill products, n.s.k. | 46.0 | 89.5 | 78.2 | 57.0 | 40.1 | 45.7 | 29.7 | 5.8 |
| **2076-** | **Vegetable oil mills, n.e.c.** | **490.0** | **484.2** | **489.3** | **544.9** | **601.1** | **544.3** | **401.0** | **263.4** |
| 20761 | Linseed oil | 104.9 | 95.2 | 74.0 | 112.6 | 86.8 | 84.1 | 72.5 | 44.4 |
| 20762 | Vegetable oils, n.e.c. | 218.0 | 304.2 | 343.3 | 324.8 | 413.4 | 372.1 | 210.8 | 157.4 |
| 20763 | Other vegetable oil mill products, n.e.c. | 159.2 | 75.7 | 64.8 | 100.1 | 100.8 | 84.8 | 86.9 | 59.2 |
| 20760 | Vegetable oil mill products, n.e.c., n.s.k. | 7.8 | 9.1 | 7.5 | 7.3 | - | 3.3 | 30.8 | 2.4 |
| **2077-** | **Animal and marine fats and oils** | **2 147.2** | **1 981.6** | **2 331.1** | **2 937.0** | **2 410.5** | **2 337.1** | **2 102.2** | **977.1** |
| 20771 | Grease and inedible tallow | 754.2 | 831.0 | 1 110.4 | 1 378.6 | 912.4 | 938.0 | 969.4 | 419.4 |
| 20772 | Feed and fertilizer byproducts | 1 045.1 | 854.0 | 923.9 | 1 214.5 | 1 172.6 | 1 093.5 | 753.9 | 389.2 |
| 20773 | Animal and marine oil mill products | 195.6 | 224.2 | 216.0 | 249.8 | 241.5 | 205.4 | 250.4 | 121.8 |
| 20770 | Animal and marine fats and oils, n.s.k. | 152.3 | 72.4 | 80.8 | 94.2 | 84.0 | 100.2 | 108.4 | 46.7 |
| **2079-** | **Edible fats and oils, n.e.c.** | **4 894.1** | **5 215.3** | **6 135.6** | **6 148.6** | **5 358.1** | **5 340.5** | **4 272.2** | **2 274.5** |
| 20791 | Shortening and cooking oils | 3 427.2 | 3 802.9 | 4 631.6 | 4 657.4 | 4 165.8 | 4 028.6 | 3 166.3 | 1 685.8 |
| 20792 | Margarine | 1 167.5 | 1 362.4 | 1 419.2 | 1 418.3 | 1 110.1 | 1 225.1 | 1 070.4 | 586.3 |
| 20790 | Edible fats and oils, n.e.c., n.s.k. | 99.4 | 50.0 | 84.8 | 72.9 | 82.3 | 86.8 | 35.5 | 2.4 |

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

# Table 7. Materials Consumed by Kind: 1987 and 1982

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

| 1987 material code | Material | 1987 | | 1982 | |
|---|---|---|---|---|---|
| | | Quantity[1] | Delivered cost (million dollars) | Quantity[1] | Delivered cost (million dollars) |
| | **INDUSTRY 2074, COTTONSEED OIL MILLS** | | | | |
| | **Materials, ingredients, containers, and supplies** | (X) | **300.0** | (X) | **583.4** |
| 013111 | Cottonseed ..... 1,000 s tons | 2 593.7 | 255.9 | 4 878.3 | 401.8 |
| | Cottonseed oil: | | | | |
| 207411 | Crude ..... mil lb | | | | |
| 207421 | Once-refined ..... do | (S) | 35.2 | (NA) | 44.5 |
| 970099 | All other materials, ingredients, containers, and supplies ..... | | | | |
| 971000 | Materials, ingredients, containers, and supplies, n.s.k.[2] ..... | (X) | 8.9 | (X) | 47.3 |
| | **INDUSTRY 2075, SOYBEAN OIL MILLS** | | | | |
| | **Materials, ingredients, containers, and supplies** | (X) | **7 283.8** | (X) | **6 968.3** |
| 011611 | Soybeans ..... 1,000 s tons | 35 402.1 | 6 159.0 | 29 657.0 | 5 950.0 |
| 207511 | Soybean oil, crude ..... mil lb | 3 373.1 | 578.2 | (3) | (3) |
| 260091 | Paper and paperboard containers ..... | (X) | 14.8 | (X) | 8.8 |
| 970099 | All other materials, ingredients, containers, and supplies ..... | (X) | 490.6 | (X) | [3]541.6 |
| 971000 | Materials, ingredients, containers, and supplies, n.s.k.[2] ..... | (X) | 41.2 | (X) | 467.7 |
| | **INDUSTRY 2076, VEGETABLE OIL MILLS, N.E.C.** | | | | |
| | **Materials, ingredients, containers, and supplies** | (X) | **320.3** | (X) | **357.5** |
| | Seeds, nuts, and beans: | | | | |
| 011911 | Flaxseed ..... 1,000 s tons | (D) | (D) | 286.6 | 63.0 |
| 011912 | Sunflower seed ..... do | (D) | (D) | 389.2 | 77.8 |
| 013920 | Peanuts ..... do | (D) | (D) | 133.0 | 33.0 |
| 010015 | Other seeds, nuts, and beans (excluding sunflower, flaxseed, and peanuts) ..... do | (D) | (D) | 93.3 | 18.3 |
| 970099 | All other materials, ingredients, containers, and supplies ..... | (X) | 174.7 | (X) | 159.2 |
| 971000 | Materials, ingredients, containers, and supplies, n.s.k.[2] ..... | (X) | 6.1 | (X) | 6.2 |
| | **INDUSTRY 2077, ANIMAL AND MARINE FATS AND OILS** | | | | |
| | (Material data were not collected for this industry.) | | | | |
| | **INDUSTRY 2079, EDIBLE FATS AND OILS, N.E.C.** | | | | |
| | **Materials, ingredients, containers, and supplies** | (X) | **2 703.4** | (X) | **3 439.7** |
| 201104 | Tallow and stearin, edible ..... mil lb | 663.9 | 112.0 | 860.8 | 184.2 |
| | Cottonseed oil: | | | | |
| 207411 | Crude ..... mil lb | 238.7 | 46.7 | 339.6 | 71.0 |
| 207421 | Once-refined ..... do | 116.6 | 24.4 | 130.7 | 33.7 |
| 207915 | Fully-refined ..... do | 59.8 | 12.9 | 56.6 | 17.1 |
| | Soybean oil: | | | | |
| 207511 | Crude ..... mil lb | 4 854.5 | 827.9 | 5 839.1 | 1 185.2 |
| 207512 | Once-refined ..... do | 395.1 | 98.5 | 356.2 | 105.3 |
| 207916 | Fully-refined ..... do | 1 394.5 | 324.0 | 2 027.4 | 554.2 |
| | Other oil: | | | | |
| 207601 | Crude ..... mil lb | 970.1 | 209.8 | 667.5 | 181.0 |
| 207603 | Once-refined ..... do | 148.6 | 34.7 | 319.1 | 84.1 |
| 207917 | Fully-refined ..... do | 569.8 | 141.1 | [4]328.3 | 105.4 |
| 201151 | Lard ..... do | 263.5 | 39.1 | 279.6 | 58.9 |
| | Containers: | | | | |
| 260091 | Paper and paperboard containers (including shipping sacks and other paper packaging supplies) ..... | (X) | 127.4 | (X) | 102.7 |
| 308015 | Plastics containers ..... | (X) | 164.8 | (X) | 101.3 |
| 322101 | Glass containers ..... 1,000 gross | (S) | 18.9 | 3 091.2 | 102.0 |
| 340003 | Metal containers, excluding drums ..... | (X) | 33.5 | (X) | 39.4 |
| 341220 | Metal drums ..... | (X) | 5.4 | (X) | 11.9 |
| 970099 | All other materials, ingredients, containers, and supplies ..... | (X) | 420.1 | (X) | 430.3 |
| 971000 | Materials, ingredients, containers, and supplies, n.s.k.[2] ..... | (X) | 62.4 | (X) | 83.0 |

[1]For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[3]For 1982, data for material codes 207511 and 207521 were included with material code 970099.

# APPENDIX A.
# Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

## SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

**Number of establishments and companies**—As discussed in the Introduction, a separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the General Summary subject report.

**Employment and related items**—The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

**All employees**—This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

**Production workers**—This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

**All other employees**—This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual

industries shown in this report. They are included in the general summary and geographic area reports as a separate category.

**Payroll**—This item includes the gross earnings of all employees on the payroll of operating manufacturing establishments paid in the calendar year 1987. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payroll of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

**Production-worker hours**—This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

**Cost of materials**—This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

**Specific materials consumed**—In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as "not specified by kind." (See the introduction for the importance of administrative records in the industry.)

**Value of shipments**—This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of "all other costs" (including company overhead) and profit. (See discussion of duplication of data below.)

**Individual products**—As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1987 census program, information was collected on the output of approximately 11,000 individual product items. The term "product", as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term "product" as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, "pharmaceutical preparations" was distributed into over 100 terms; whereas, "motor gasoline" was reported as a single item.

Approximately 6,600 of the product items were listed separately on the 1987 census report forms. Data for

about 4,400 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1987 for these items, as derived from the commodity surveys, are shown in the "products shipped" table (table 6a-2).

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1982 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

**Classes of products**—To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Introduction, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1987 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, and the like. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

**Duplication in cost of materials and value of shipments**— The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the United States level and beginning in 1964, for all geographic levels.

**Value added by manufacture**—This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

"Value added" avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

**New and used capital expenditures**—For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases, new facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

**End-of-year inventories**—Respondents were asked to report their 1986 and 1987 end-of-year inventories at cost or market. Effective with the 1982 Economic Censuses, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1987 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for "all industries" and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and "all manufacturing", which are aggregates of figures reported by establishments in specified industries.

**Specialization and coverage ratios**—These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

As noted in the introduction, an establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

## SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

1. **Supplemental labor costs**—Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans.

They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees. While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

2. **Retirements of depreciable assets**—Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1987. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

3. **Depreciation charges for fixed assets**—This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

4. **Rental payments**—Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

   When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

   If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

5. **Depreciable assets**—Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

   The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

6. **New and used capital expenditures**—The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

7. **Quantity of electric energy consumed for heat and power**—Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the ASM forms. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

8. **Breakdown of new capital expenditures for machinery and equipment**—ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

   The category "automobiles, trucks, etc., for highway use" is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement.

Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

9. **Foreign content of cost of materials**—Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

10. **Cost of purchased services**—ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, and communication services. Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding Census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed.

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the three types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

# APPENDIX B.
# Annual Survey of Manufactures (ASM) Sampling and Estimating Methodologies

## DESCRIPTION OF SURVEY SAMPLE

The Annual Survey of Manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 56,000 manufacturing establishments selected from a total of about 220,000 establishments. These 220,000 establishments represent all manufacturing establishments of multiunit companies and all single establishment companies mailed schedules in the 1982 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1982 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

The 1984 through 1988 ASM sample differs slightly from the previous sample. For the current panel, all establishments of companies with 1982 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 56,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1982 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1982 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1982 Census of Manufactures. Although this portion contained approximately 130,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-record information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

## DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1983-1986 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1982 census published number for an item total and the linear ASM estimate of the total for 1982. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail establishments, to produce the estimates for the years 1983-1986. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

The 1987 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates, however, developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

## QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

# APPENDIX C.
# Changes in Census of Manufactures Product Classes for 1987

[Based on revisions to the Standard Industrial Classification (SIC) Manual definitions of some product classes were revised for 1987. Listed below are the revisions to the product classes]

| 1987 | 1982 |
|---|---|
| 2011B | 2011A<br>2013A pt |
| 20135 | 20130 |
| 2013B | 2013A pt |
| 20150 | 20160<br>20170 |
| 20151 | 20161<br>20171 |
| 20152 | 20162<br>20172 |
| 20153 | 20163<br>20173 |
| 20154 | 20164<br>20174 |
| 20155 | 20165<br>20175 |
| 20159 | 20179 |
| 20226 | 20220 |
| 20239 | 20239<br>2099A pt |
| 20267 | 20266 pt<br>2099B pt |
| 20268 | 20266 pt<br>2099B pt |
| 20324 | 20324 pt |
| 20343 | 20341 pt |
| 20380 | 20380 pt |
| 20384 | 20381 pt<br>20383 pt |
| 20415 | 20383 pt<br>20415 |
| 20440 | 20440 pt |
| 20450 | 20383 pt<br>20450 |
| 20470 | 20470 pt |
| 20480 | 20470 pt<br>20480 |
| 2048A | 20475<br>20476 |
| 20530 | 20380 pt<br>20381 pt |
| 20640 | 20650 pt |
| 20642 | 20652 |
| 20643 | 20653 |
| 20649 | 20659 |
| 20660 | 20660<br>20990 pt |
| 20669 | 20668<br>20998 |
| 20680 | 20341 pt<br>20650 pt<br>20657 |
| 20863<br>20864<br>20865 | 20861 pt |
| 20866 | 20861 pt<br>20862 |
| 20866—Con. | 20861 pt—Con.<br>20995 pt |
| 20910 | 20324 pt<br>20910 |
| 20925<br>20926 | 20924 |
| 20961<br>20962<br>20963 | 20992 |
| 20980 | 20981 pt |
| 20997 | 20341 pt<br>20440 pt<br>20982<br>2099A pt |
| 20999 | 2099B pt |
| 2099D | 20995 pt |
| 2099E<br>2099F<br>2099G | 2099C<br>20981 pt |
| 2211B | 22111 pt<br>22112 pt<br>22113 pt<br>22114 pt<br>22115 pt<br>22116 pt |
| 2211C | 22111 pt<br>22112 pt<br>22113 pt<br>22114 pt<br>22115 pt<br>22116 pt |
| 2211D | 22111 pt<br>22112 pt<br>22113 pt<br>22114 pt<br>22115 pt<br>22116 pt |
| 2211E | 22111 pt<br>22112 pt<br>22113 pt<br>22114 pt<br>22115 pt<br>22116 pt |
| 2211F | 22117 |
| 2211G | 22119 |
| 2211H | 2211A |
| 2221B | 22211 pt<br>22212 pt<br>22213 pt<br>22214 pt<br>22215 pt<br>22216 pt<br>22217 pt |
| 2221C | 22211 pt<br>22212 pt<br>22213 pt<br>22214 pt<br>22215 pt<br>22216 pt<br>22217 pt |
| 2221D | 22211 pt<br>22212 pt<br>22213 pt<br>22214 pt<br>22215 pt<br>22216 pt<br>22217 pt |
| 2221E | 22211 pt<br>22212 pt<br>22213 pt<br>22214 pt<br>22215 pt<br>22216 pt<br>22217 pt |
| 2221F | 22211 pt |
| 2221F—Con. | 22211 pt—Con.<br>22212 pt<br>22213 pt<br>22214 pt<br>22215 pt<br>22216 pt<br>22217 pt |
| 2221G | 22211 pt<br>22212 pt<br>22213 pt<br>22214 pt<br>22215 pt<br>22216 pt<br>22217 pt |
| 2221H | 22211 pt<br>22212 pt<br>22213 pt<br>22214 pt<br>22215 pt<br>22216 pt<br>22217 pt |
| 2221J | 22218 |
| 2221K | 22219 |
| 2221M | 2221A |
| 22510 | 22510 pt |
| 22514 | 22512 pt |
| 22518 | 22517 pt |
| 22520 | 22510 pt<br>22520 |
| 22525 | 22512 pt<br>22523 |
| 22526 | 22517 pt<br>22524 |
| 22585 | 22920 pt |
| 22589 | 22589<br>22920 pt |
| 22730 | 22710 pt<br>22720 pt<br>22790 pt |
| 22731 | 22710 pt |
| 22732 | 22720 pt |
| 22733 | 22790 pt |
| 22815 | 22833 |
| 22822 | 22822<br>22830 |
| 22991 | 22910 |
| 22994 | 22940 |
| 22995 | 22930 |
| 22996 | 22992<br>22993 |
| 23219 | 23219 pt |
| 23221 | 23220 |
| 23222 | 23215 |
| 23229 | 23219 pt<br>23229 |
| 23250 | 23270 |
| 23251 | 23271 pt |
| 23252 | 23283 |
| 23259 | 23279 |
| 23259—Con. | 23279—Con.<br>23289 pt |
| 23260 | 23280 |
| 23261 | 23281 |
| 23262 | 23284 |
| 23269 | 23289 pt |
| 23293 | 23271 pt<br>23292 |
| 23530 | 23510 pt<br>23520 |
| 23531 | 23521 |
| 23532 | 23522 |
| 23539 | 23510 pt |
| 23692 | 23631 |
| 23693 | 23691 |
| 23699 | 23619<br>23699 |
| 23813 | 23811 pt<br>23812 pt |
| 23814 | 23811 pt<br>23812 pt |
| 23952 | 23951 pt |
| 23958 | 23959 |
| 23964 | 23951 pt |
| 24930 | 24920 pt<br>26610 |
| 24931 | 24920 pt |
| 24932 | 24920 pt |
| 24933 | 24993 |
| 24934 | 24996 |
| 24935 | 26611 |
| 24936 | 24998 |
| 24937 | 24995 |
| 24994 | 2499A pt |
| 25115 | 25115<br>25158 |
| 25145 | 25141<br>25142 |
| 25146 | 25143 |
| 25147 | 25144 |
| 25425<br>25991<br>25992<br>25994 | 25990 |
| 2621B | 26612 |
| 26560 | 26540 |
| 26561 | 26541 |
| 26562 | 26542 |
| 26563 | 26545 |
| 26570 | 26510<br>26544 |

[Based on revisions to the Standard Industrial Classification (SIC) Manual definitions of some product classes were revised for 1987. Listed below are the revisions to the product classes]

| 1987 | 1982 |
|---|---|
| 26710 | 26410 pt |
| 26711 | 26415 |
| 26712 | 26416 |
| 26713 | 26419 |
| 26714 | 2641A |
| 26720 | 26410 pt |
| 26721 | 26411 |
| 26722 | 26413 |
| 26723 | 26414 |
| 26724 | 2641B |
| 26730 | 26430 pt |
| 26731 | 26435 |
| 26732 | 26436 |
| 26733 | 26437 |
| 26740 | 26430 pt |
| 26741 | 26434 |
| 26742 | 26438 |
| 26750 | 26450 |
| 26751 | 26453 |
| 26752 | 26454 |
| 26753 | 26455 |
| 26760 | 26470 |
| 26761 | 26471 |
| 26763 | 26473 |
| 26764 | 26474 |
| 26770 | 26420 |
| 26780 | 26480 |
| 26781 | 26481 |
| 26782 | 26482 |
| 26790 | 26460 pt<br>26490 |
| 26791 | 26493 |
| 26792 | 26494 |
| 26793 | 26496 |
| 26794 | 26460 pt |
| 26795 | 26497 |
| 27416<br>27417 | 27411 |
| 27418 | 27412 |
| 27419 | 27414 |
| 2741A<br>2741B | 27415 |
| 27590 | 27510 pt |
| 27591 | 27511 pt |
| 27592 | 27512 pt |
| 27593 | 27513 pt |
| 27594 | 27514 pt |
| 27595 | 27515 pt |
| 27596 | 27516 pt |
| 27597 | 27511 pt<br>27512 pt<br>27513 pt<br>27514 pt<br>27515 pt<br>27516 pt |
| 27598 | 27519 |
| 27599 | 27531 |
| 2759A | 27510 pt |
| 27960 | 27530<br>27950 |
| 27961 | 27951<br>35557 pt |
| 27962 | 27952 |
| 27963 | 27532<br>27547<br>27930<br>27940 |
| 28247 | 28243<br>28245 |
| 28248 | 28246 |
| 28350 | 2831A |
| 28350—Con.<br>28351<br>28352 | 2831A—Con. |
| 28360 | 28310 |
| 28361 | 28311 |
| 28362 | 28312 |
| 28363 | 28317 |
| 28364 | 28318<br>28319 |
| 28656 | 2911C |
| 28691 | 2911B |
| 28916<br>28917 | 28915 |
| 2911D | 2911D pt |
| 29990 | 2911D pt<br>29990 |
| 31430 | 31430<br>31433<br>31434<br>31435 |
| 31440 | 31440<br>31445<br>31446<br>31447<br>31448 |
| 31490 | 31490<br>31491<br>31493<br>31495<br>31496<br>31497 |

# APPENDIX D.
# Changes in Census of Manufactures Product Codes for 1987

[Based on revisions to the Standard Industrial Classification (SIC) Manual, definitions of some product codes were revised for 1987. Listed below are the revisions to the product codes. The terms published and collected are defined as follows: (1) published refers to the code used in the published reports for 1987 and 1982, and (2) collected refers to the code appearing on the report forms for 1987]

| 1987 published | 1987 collected | 1982 published |
|---|---|---|
| 20119 14 | 20119 14 | 20119 12<br>20119 13 |
| 2011B 15 | 2011B 15 | 2011A 15 |
| 2011B 41 | 2011B 41 | 2011A 41 |
| 2011B 55 | 2011B 55 | 2011A 55 |
| 2011B 99 | 2011B 99 | 2011A 31<br>2011A 51 |
| 20135 13<br>20135 17 | 20135 13<br>20135 17 | 20130 00 |
| 20151 33 | 20161 33 | 20161 33 |
| 20151 34 | 20161 34 | 20161 34 |
| 20151 36 | 20161 36 | 20161 36 |
| 20151 39 | 20161 39<br>20171 39 | 20161 39<br>20171 39 |
| 20151 41 | 20161 41<br>20171 41 | 20161 41<br>20171 41 |
| 20152 21 | 20162 21<br>20172 21 | 20162 21<br>20172 21 |
| 20152 23 | 20162 23<br>20172 23 | 20162 23<br>20172 23 |
| 20153 22 | 20163 22<br>20173 22 | 20163 21 pt<br>20173 21 pt |
| 20153 24 | 20163 24<br>20173 24 | 20163 23 pt<br>20173 23 pt |
| 20153 26 | 20163 26<br>20173 26 | 20163 25 pt<br>20173 25 pt |
| 20153 27 | 20163 27 | 20163 21 pt<br>20163 23 pt<br>20163 25 pt |
| | 20173 27 | 20173 21 pt<br>20173 23 pt<br>20173 25 pt |
| 20154 14 | 20164 14<br>20174 14 | 20164 14<br>20174 14 |
| 20154 16 | 20164 16<br>20174 16 | 20164 16<br>20174 16 |
| 20155 11 | 20165 11 -<br>20175 11 | 20165 11<br>20175 11 |
| 20155 13 | 20165 13<br>20175 13 | 20165 13<br>20175 13 |
| 20155 15 | 20165 15<br>20175 15 | 20165 15<br>20175 15 |
| 20155 31 | 20165 31<br>20175 31 | 20165 31<br>20175 31 |
| 20155 32 | 20165 32<br>20175 32 | 20165 32<br>20175 32 |
| 20155 33 | 20165 33<br>20175 33 | 20165 33<br>20175 33 |
| 20155 34 | 20165 34<br>20175 34 | 20165 34<br>20175 34 |
| 20155 39 | 20165 39<br>20175 39 | 20165 39<br>20175 39 |
| 20155 48 | 20165 48<br>20175 48 | 20165 48<br>20175 48 |
| 20159 11 | 20179 11 | 20179 11 |
| 20159 13 | 20179 13 | 20179 13 |
| 20159 15 | 20179 15 | 20179 15 |
| 20159 17 | 20179 17 | 20179 17 |
| 20159 51 | 20179 51 | 20179 51 |
| 20159 53 | 20179 53 | 20179 53 |
| 20159 55 | 20179 55 | 20179 55 |
| 20159 57 | 20179 57 | 20179 57 |
| 20226 00 | 20220 11 | 20220 00 |
| 20235 22 | 20235 22 | 20235 28 pt |
| 20235 29 | 20235 29 | 20235 21<br>20235 28 pt |
| 20239 23 | 20239 23 | 20239 29 pt |
| 20239 25 | 2099A 12 | 2099A 11 pt |
| 20239 28 | 20239 28 | 20239 29 pt |
| 20239 32<br>20239 38 | 20239 32<br>20239 38 | 20239 31<br>20239 37<br>20239 39 |
| 20240 31 | 20240 31 | 20240 98 pt |
| 20240 52<br>20240 54 | 20240 52<br>20240 54 | 20240 51 |
| 20240 99 | 20240 99 | 20240 98 pt |
| 20267 11 | 2099B 11 | 2099B 11 |
| 20267 13 | 2099B 13 | 2099B 13 |
| 20267 14<br>20267 16 | 2099B 14<br>2099B 16 | 2099B 19 pt |
| 20267 17 | 20267 17 | 20266 17 |
| 20267 18 | 2099B 18 | 2099B 19 pt |
| 20268 13 | 2099B 51 | 2099B 51 |
| 20268 15 | 20268 15 | 20266 15 |
| 20268 19 | 20268 19 | 20266 19 |
| 20324 97<br>20324 99 | 20324 97<br>20324 99 | 20324 96 |
| 20331 13 | 20331 13 | 20331 71 |
| 20331 32 | 20331 32 | 20331 72 |
| 20331 36 | 20331 36 | 20331 73 |
| 20331 38 | 20331 38 | 20331 74 |
| 20331 41 | 20331 41 | 20331 75 |
| 20332 05 | 20332 05 | 20332 08<br>20332 09<br>20332 92 |
| 20332 37 | 20332 37 | 20332 96 |
| 20336 14 | 20336 14 | 20336 13 |
| 20336 15<br>20336 31 | 20336 15<br>20336 31 | 20336 19 |
| 2033B 21 | 2033B 21 | 2033B 00 |
| 20343 13 | 20341 13 | 20341 13 |
| 20343 15 | 20341 15 | 20341 15 |
| 20343 18 | 20341 18 | 20341 18 |
| 20343 21 | 20341 21 | 20341 21 |
| 20343 23 | 20341 23 | 20341 23 |
| 20343 29 | 20341 29 | 20341 29 |
| 20343 31 | 20341 31 | 20341 32<br>20341 33<br>20341 35 |
| 20352 31<br>20352 34 | 20352 31<br>20352 34 | 20352 33 |
| 20354 35 | 20354 35 | 20354 31<br>20354 33<br>20354 39 |
| 20382 26<br>20382 28 | 20382 26<br>20382 28 | 20382 27 |
| 20384 51 | 20383 51 | 20383 51 |
| 20384 59 | 20383 59 | 20383 59 |
| 20384 63 | 20383 63 | 20381 18 |
| 20384 69 | 20383 69 | 20383 61 pt |
| 20411 26 | 20411 26 | 20411 24<br>20411 25 |
| 20412 19 | 20412 19 | 20412 00<br>20412 17 |
| 20415 91<br>20415 93 | 20383 65<br>20383 66 | 20383 61 |
| 20430 21<br>20430 23 | 20430 21<br>20430 23 | 20430 19 |
| 20430 55 | 20430 55 | 20430 52 pt |
| 20430 57 | 20430 57 | 20430 53 pt |
| 20430 61 | 20430 61 | 20430 59 pt |
| 20430 63 | 20430 63 | 20430 52 pt<br>20430 53 pt<br>20430 59 pt |
| 20450 91<br>20450 93 | 20383 67<br>20383 68 | 20383 61 |
| 20464 72<br>20464 75 | 20464 72<br>20464 70 | 20464 60 |
| 20481 21 | 20481 21 | 20481 13 pt |
| 20481 22 | 20481 22 | 20481 17 pt |
| 20481 23 | 20481 23 | 20481 26 pt |
| 20481 24 | 20481 24 | 20481 28 pt |
| 20481 31 | 20481 31 | 20481 13 pt |
| 20481 32 | 20481 32 | 20481 17 pt |
| 20481 33 | 20481 33 | 20481 26 pt |
| 20481 34 | 20481 34 | 20481 28 pt |
| 20483 01<br>20483 02 | 20483 01<br>20483 02 | 20483 00 |
| 20485 03<br>20485 04 | 20485 03<br>20485 04 | 20485 00 |
| 20487 05<br>20487 06 | 20487 05<br>20487 06 | 20487 00 |
| 20488 11 | 20488 11 | 20488 14 |
| 20488 12<br>20488 13 | 20488 12<br>20488 13 | 20488 15 |
| 20488 21 | 20488 21 | 20488 18 |
| 20488 23 | 20488 23 | 20488 17 pt |
| 20488 25 | 20488 25 | 20488 19 pt |
| 20488 31 | 20488 31 | 20488 17 pt |
| 20488 33 | 20488 33 | 20488 19 pt |
| 2048A 01 | 20475 35 | 20475 35 |
| 2048A 03 | 20475 52 | 20475 52 |
| 2048A 05 | 20476 61 | 20476 61 |
| 2048A 07 | 20476 63 | 20476 63 |
| 2048A 09 | 20476 65 | 20476 65 |
| 2048A 11 | 20476 67 | 20476 67 |
| 2048A 13 | 20476 69 | 20476 69 |
| 20512 39<br>20512 40<br>20512 42 | 20512 39<br>20512 40<br>20512 42 | 20512 38 |
| 20530 11 | 20381 11 | 20381 11 |
| 20530 13 | 20381 13 | 20381 13 |
| 20530 14 | 20381 14 | 20381 14 |
| 20530 17 | 20381 17 | 20381 17 |
| 20530 19 | 20381 19 | 20381 19 |
| 20642 00 | 20652 00 | 20652 00 |
| 20643 00 | 20653 00 | 20653 00 |
| 20649 21 | 20659 21 | 20659 21 |
| 20649 76 | 20659 76 | 20659 76 |
| 20669 11 | 20668 11<br>20998 11 | 20668 11<br>20998 11 |
| 20669 21 | 20668 21<br>20998 21 | 20668 21<br>20998 21 |
| 20669 63 | 20668 63<br>20998 63 | 20668 63<br>20998 63 |
| 20669 71 | 20668 71<br>20998 71 | 20669 71<br>20998 71 |
| 20669 75 | 20668 75<br>20998 75 | 20668 75<br>20998 75 |
| 20669 81 | 20668 81 | 20668 81 |
| 20669 92 | 20668 92<br>20998 92 | 20668 92<br>20998 92 |
| 20669 93 | 20668 93<br>20998 93 | 20668 93<br>20998 93 |
| 20669 95 | 20668 95<br>20998 95 | 20668 95<br>20998 95 |
| 20670 11<br>20670 14 | 20670 11<br>20670 14 | 20670 12 |
| 20680 13 | 20657 13 | 20657 13 |
| 20680 15 | 20657 15 | 20657 15 |
| 20680 17 | 20657 17 | 20657 17 |
| 20680 33 | 20657 33 | 20657 33 |
| 20680 35 | 20657 35 | 20657 35 |

[Based on revisions to the Standard Industrial Classification (SIC) Manual, definitions of some product codes were revised for 1987. Listed below are the revisions to the product codes. The terms published and collected are defined as follows: (1) published refers to the code used in the published reports for 1987 and 1982, and (2) collected refers to the code appearing on the report forms for 1987]

| 1987 published | 1987 collected | 1982 published |
|---|---|---|
| 20680 37 | 20657 37 | 20657 37 |
| 20680 53 | 20657 53 | 20657 53 |
| 20680 55 | 20657 55 | 20657 55 |
| 20680 57 | 20657 57 | 20657 57 |
| 20680 61 | 20657 61 | 20657 61 |
| 20740 98 | 20740 98 | 20740 00 |
| 20750 98 | 20750 98 | 20750 00 |
| 20760 94<br>20760 95<br>20760 96<br>20760 97<br>20760 98 | 20760 94<br>20760 95<br>20760 96<br>20760 97<br>20760 98 | 20760 00 |
| 20821 01 | 20821 01 | 20821 14<br>20821 19 pt |
| 20821 02 | 20821 02 | 20821 15<br>20821 19 pt |
| 20821 03 | 20821 03 | 20821 18<br>20821 19 pt |
| 20824 99 | 20824 99 | 20824 71<br>20824 81<br>20824 91 |
| 20840 45<br>20840 46 | 20840 45<br>20840 46 | 20840 43 |
| 20851 48 | 20851 48 | 20851 41<br>20851 45<br>20851 49 |
| 20863 10 | 20863 10 | 20861 01 pt<br>20861 03 pt<br>20861 07 pt<br>20861 10 pt<br>20861 11 pt<br>20861 12 pt<br>20861 13 pt<br>20861 14 pt<br>20861 15 pt<br>20861 16 pt<br>20861 17 pt<br>20861 18 pt<br>20861 19 pt<br>20861 20 pt<br>20861 21 pt<br>20861 22 pt<br>20861 23 pt<br>20861 24 pt<br>20861 25<br>20861 26 pt<br>20861 27 pt<br>20861 28 pt<br>20861 29 pt<br>20861 31 pt<br>20861 32 pt<br>20861 33 pt<br>20861 34 pt<br>20861 36 pt<br>20861 37 pt<br>20861 38 pt<br>20861 39 pt<br>20861 42 pt<br>20861 44 pt<br>20861 45 pt<br>20861 47 pt |
| 20863 20 | 20863 20 | 20863 01<br>20863 03<br>20863 07<br>20863 10<br>20863 12<br>20863 13<br>20863 14<br>20863 15<br>20863 16<br>20863 17<br>20863 18<br>20863 19<br>20863 20<br>20863 21<br>20863 22<br>20863 23<br>20863 24<br>20863 26<br>20863 27<br>20863 28<br>20863 29<br>20863 31<br>20863 32<br>20863 34 |
| 20863 20—Con. | 20863 20—Con. | 20863 01—Con.<br>20863 36<br>20863 37<br>20863 38<br>20863 39<br>20863 42<br>20863 44<br>20863 45<br>20863 47 |
| 20863 30 | 20863 30 | 20861 01 pt<br>20861 03 pt<br>20861 07 pt<br>20861 10 pt<br>20861 11 pt<br>20861 12 pt<br>20861 13 pt<br>20861 14 pt<br>20861 15 pt<br>20861 16 pt<br>20861 17 pt<br>20861 18 pt<br>20861 19 pt<br>20861 20 pt<br>20861 21 pt<br>20861 22 pt<br>20861 23 pt<br>20861 24 pt<br>20861 26 pt<br>20861 27 pt<br>20861 28 pt<br>20861 29 pt<br>20861 31 pt<br>20861 32 pt<br>20861 33 pt<br>20861 34 pt<br>20861 36 pt<br>20861 37 pt<br>20861 38 pt<br>20861 39 pt<br>20861 42 pt<br>20861 44 pt<br>20861 45 pt<br>20861 47 pt |
| 20864 10 | 20864 10 | 20861 51<br>20861 52<br>20861 53<br>20861 55<br>20861 56<br>20861 57<br>20861 58<br>20861 59 |
| 20865 01 | 20865 01 | 20861 81 pt<br>20861 83 pt |
| 20865 02 | 20865 02 | 20861 81 pt<br>20861 83 pt |
| 20866 01 | 20866 01 | 20862 88 pt<br>20862 89 pt |
| 20866 02 | 20866 02 | 20862 85<br>20862 86<br>20862 88 pt<br>20862 89 pt |
| 20866 03 | 20866 03 | 20862 91 |
| 20866 04<br>20866 05 | 20866 04<br>20866 05 | 20861 93 |
| 20866 06 | 20866 06 | 20861 83 pt |
| 20866 07 | 20995 85 | 20995 85 |
| 20866 09 | 20866 09 | 20860 00 |
| 20873 21 | 20873 21 | 20873 13 pt<br>20873 39 pt |
| 20873 23 | 20873 23 | 20873 13 pt<br>20873 39 pt |
| 20873 25 | 20873 25 | 20873 13 pt<br>20873 39 pt |
| 20873 41 | 20873 41 | 20873 13 pt<br>20873 39 pt |
| 20873 43 | 20873 43 | 20873 13 pt<br>20873 39 pt |
| 20873 45 | 20873 45 | 20873 13 pt<br>20873 39 pt |
| 20910 19 | 20324 11<br>20910 19 | 20324 98 pt<br>20910 19 |
| 20922 27<br>20922 28<br>20922 31 | 20922 27<br>20922 28<br>20922 31 | 20922 29 |
| 20923 11<br>20923 13 | 20923 11<br>20923 13 | 20923 21 |
| 20923 15<br>20923 17 | 20923 15<br>20923 17 | 20923 22 |
| 20923 19 | 20923 19 | 20923 23 |
| 20923 31<br>20923 33 | 20923 31<br>20923 33 | 20923 26 |
| 20923 35 | 20923 35 | 20923 28<br>20923 29 |
| 20925 21 | 20925 21 | 20924 21 |
| 20925 22 | 20925 22 | 20924 22 |
| 20925 23 | 20925 23 | 20924 33 pt |
| 20925 24 | 20925 24 | 20924 24 |
| 20925 25 | 20925 25 | 20924 25 |
| 20925 26 | 20925 26 | 20924 26 |
| 20925 31 | 20925 31 | 20924 31 |
| 20925 32 | 20925 32 | 20924 32 |
| 20925 33 | 20925 33 | 20924 33 pt |
| 20925 34 | 20925 34 | 20924 34 |
| 20925 35 | 20925 35 | 20924 35 |
| 20925 36 | 20925 36 | 20924 36 |
| 20926 11<br>20926 13<br>20926 98 | 20926 11<br>20926 13<br>20926 98 | 20924 98 |
| 20951 15 | 20951 15 | 20915 18<br>20951 17 |
| 20961 00 | 20992 13 | 20992 12 |
| 20980 21 | 20981 21 | 20981 21 |
| 20980 31 | 20981 31 | 20981 31 |
| 20997 13 | 2099A 13 | 2099A 11 pt |
| 20997 21 | 2099A 21 | 2099A 21 |
| 20997 31 | 2099A 31 | 2099A 31 |
| 20997 41 | 2099A 41 | 2099A 41 |
| 20997 61 | 20341 36 | 20341 36 |
| 20997 71 | 20440 19 | 20440 19 |
| 20997 81 | 20982 35 | 20982 35 |
| 20997 85 | 20982 41 | 20982 41 |
| 20997 98 | 2099A 98 | 2099A 98 |
| 20999 21 | 2099B 21 | 2099B 21 |
| 20999 31 | 2099B 31 | 2099B 31 |
| 20999 35 | 2099B 35 | 2099B 98 pt |
| 20999 41 | 2099B 41 | 2099B 41 |
| 20999 53<br>20999 55<br>20999 98 | 2099B 53<br>2099B 55<br>2099B 99 | 2099B 98 |
| 2099D 82 | 20995 82 | 20995 82 |
| 2099D 83 | 20995 83 | 20995 83 |
| 2099D 86 | 20995 86 | 20995 86 |
| 2099E 31 | 2099E 31 | 2099C 31 |
| 2099E 33 | 2099E 33 | 2099C 33 |
| 2099E 38 | 2099E 38 | 2099C 38 |
| 2099E 39 | 2099E 39 | 2099C 39 |
| 2099F 44 | 2099F 44 | 2099C 44 |
| 2099F 46 | 2099F 46 | 2099C 46 |
| 2099G 11 | 2099G 11 | 2099C 11 |
| 2099G 25 | 2099G 25 | 2099C 25 |
| 2099G 51 | 2099G 51 | 2099C 51 |
| 2099G 85 | 2099G 85 | 2099C 85 |
| 2099G 91 | 2099G 91 | 2099C 91 |
| 2099G 98 | 2099G 98 | 2099C 98 |
| 2211B 00 | 2211B 00 | 22111 00 pt<br>22112 00 pt<br>22113 00 pt<br>22114 10 pt<br>22114 50 pt<br>22115 00 pt<br>22116 00 pt |
| 2211C 00 | 2211C 00 | 22111 00 pt<br>22112 00 pt<br>22113 00 pt<br>22114 10 pt<br>22114 30 pt<br>22114 50 pt<br>22115 00 pt<br>22116 00 pt |
| 2211D 00 | 2211D 00 | 22111 00 pt<br>22112 00 pt<br>22113 00 pt<br>22114 10 pt<br>22114 30 pt<br>22114 50 pt<br>22115 00 pt<br>22116 00 pt |
| 2211E 00 | 2211E 00 | 22111 00 pt<br>22112 00 pt<br>22113 00 pt<br>22114 00<br>22114 10 pt<br>22114 30 pt<br>22114 50 pt<br>22116 00 pt |
| 2211F 00 | 2211F 00 | 22117 00<br>22117 11<br>22117 31<br>22117 51<br>22117 61 |
| 2211G 10<br>2211G 30 | 2211G 10<br>2211G 30 | 22119 00 |
| 2211H 37 | 2211H 37 | 2211A 37 |
| 2211H 42 | 2211H 42 | 2211A 42 |
| 2211H 43 | 2211H 43 | 2211H 43 |
| 2211H 44 | 2211H 44 | 2211A 44 |
| 2211H 46 | 2211H 46 | 2211A 46 |
| 2211H 62 | 2211H 62 | 2211A 62 |
| 2211H 65 | 2211H 65 | 2211A 65 |
| 2211H 67 | 2211H 67 | 2211A 67 |
| 2211H 69 | 2211H 69 | 2211A 69 |
| 2211H 73<br>2211H 75 | 2211H 73<br>2211H 75 | 2211A 75 |
| 2221B 00 | 2221B 00 | 22211 00 pt<br>22212 00 pt<br>22213 00 pt<br>22214 00 pt<br>22215 00 pt<br>22216 00 pt<br>22217 10 pt<br>22217 30 pt |
| 2221C 00 | 2221C 00 | 22214 00 pt<br>22215 00 pt<br>22216 00 pt |

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| 1987 published | 1987 collected | 1982 published |
|---|---|---|
| 2221C 00—Con. | 2221C 00—Con. | 22214 00 pt —Con.<br>22217 10 pt<br>22217 30 pt |
| 2221D 00 | 2221D 00 | 22211 00 pt<br>22212 00 pt<br>22213 00 pt<br>22214 00 pt<br>22215 00 pt<br>22216 00 pt<br>22217 10 pt<br>22217 30 pt |
| 2221E 00 | 2221E 00 | 22211 00 pt<br>22212 00 pt<br>22213 00 pt<br>22214 00 pt<br>22215 00 pt<br>22216 00 pt<br>22217 10 pt<br>22217 30 pt |
| 2221F 00 | 2221F 00 | 22211 00 pt<br>22212 00 pt<br>22213 00 pt<br>22214 00 pt<br>22215 00 pt<br>22216 00 pt<br>22217 10 pt<br>22217 30 pt |
| 2221H 10 | 2221H 10 | 22211 00 pt<br>22212 00 pt<br>22213 00 pt<br>22214 00 pt<br>22215 00 pt<br>22216 00 pt<br>22217 10 pt<br>22217 30 pt |
| 2221H 20 | 2221H 20 | 22211 00 pt<br>22212 00 pt<br>22213 00 pt<br>22214 00 pt<br>22215 00 pt<br>22216 00 pt<br>22217 10 pt<br>22217 30 pt |
| 2221J 00 | 2221J 00 | 22218 00<br>22218 15<br>22218 25<br>22218 35<br>22218 38<br>22218 55<br>22218 58<br>22218 64<br>22218 67 |
| 2221K 00 | 2221K 00 | 22219 15<br>22219 25 |
| 2221M 21 | 2221M 21 | 2221A 21<br>2221A 22 |
| 2221M 23 | 2221M 23 | 2221M 23<br>2221M 24 |
| 2221M 25 | 2221M 25 | 2221A 25<br>2221A 26 |
| 2221M 27 | 2221M 27 | 2221A 27<br>2221A 28 |
| 2221M 33 | 2221M 33 | 2221A 33<br>2221A 37 |
| 2221M 41 | 2221M 41 | 2221A 41<br>2221A 44 |
| 2221M 42 | 2221M 42 | 2221A 42<br>2221A 45 |
| 2221M 43 | 2221M 43 | 2221A 43<br>2221A 46 |
| 2221M 47 | 2221M 47 | 2221A 47<br>2221A 48 |
| 2221M 71 | 2221M 71 | 2221A 71 pt<br>2221A 72 pt |
| 2221M 77 | 2221M 77 | 2221A 71 pt<br>2221A 72 pt |
| 22514 17 | 22512 17 | 22512 17 |
| 22514 21 | 22512 21 | 22512 21 |
| 22514 37 | 22512 37 | 22512 37 |
| 22514 39 | 22512 39 | 22512 36<br>22512 38 |
| 22514 45 | 22512 45 | 22512 45 |
| 22518 14 | 22517 14 | 22517 15 pt |
| 22518 17 | 22517 17 | 22517 17 |
| 22525 11 | 22523 11 | 22523 11 |
| 22525 15 | 22512 11 | 22512 11 |
| 22525 17 | 22523 17 | 22523 17 |
| 22525 21 | 22523 21 | 22523 21 |
| 22525 27 | 22523 27 | 22523 27 |
| 22525 31 | 22523 31 | 22523 31 |
| 22525 51 | 22523 51 | 22523 51 |
| 22525 57 | 22523 57 | 22523 57 |
| 22525 61 | 22523 61 | 22523 61 |
| 22525 81 | 22523 81 | 22523 81 |
| 22526 25 | 22524 25 | 22524 25 |
| 22526 42 | 22517 13<br>22524 41 | 22517 15 pt<br>22524 41 |
| 22526 51 | 22524 51 | 22524 51 |
| 22585 00 | 22920 00 | 22920 00 |
| 22617 00 | 22617 00 | 22617 11<br>22617 31<br>22617 51<br>22617 61 |
| 22619 00 | 22619 00 | 22619 11<br>22619 31<br>22619 51<br>22619 71 |
| 22628 00 | 22628 00 | 22628 20<br>22628 30<br>22628 50<br>22628 61 |
| 22629 00 | 22629 00 | 22629 20<br>22629 30<br>22629 50<br>22629 61 |
| 22731 00 | 22710 00 | 22710 00 |
| 22732 20 | 22720 20 | 22720 20 |
| 22732 40 | 22720 40 | 22720 40 |
| 22733 00 | 22790 00 | 22790 00 |
| 22815 10 | 22833 10 | 22831 00 |
| 22815 20 | 22833 20 | 22833 20 |
| 22822 21<br>22822 31 | 22822 21<br>22822 31 | 22822 00 |
| 22823 11 | 22823 11 | 22823 27 pt<br>22823 32 pt<br>22823 35 pt |
| 22823 13 | 22823 13 | 22823 27 pt<br>22823 32 pt<br>22823 35 pt |
| 22823 15 | 22823 15 | 22823 27 pt<br>22823 32 pt<br>22823 35 pt |
| 22840 31 | 22840 31 | 22840 15 pt |
| 22840 33 | 22840 33 | 22840 28 pt |
| 22840 41 | 22840 41 | 22840 15 pt |
| 22840 43 | 22840 43 | 22840 28 pt |
| 22840 51 | 22840 51 | 22840 15 pt<br>22840 28 pt |
| 22840 61 | 22840 61 | 22840 35 |
| 22950 00<br>22950 98 | 22950 00<br>22950 98 | 22950 00 |
| 22991 00 | 22910 00 pt | 22910 00 pt |
| 22991 12<br>22991 13 | 22910 12<br>22910 13 | 22910 11 |
| 22991 15<br>22991 17 | 22910 15<br>22910 17 | 22910 19 |
| 22991 21<br>22991 23 | 22910 21<br>22910 23 | 22910 00 |
| 22991 35 | 22910 35 | 22910 36<br>22910 38 |
| 22991 47 | 22910 47 | 22910 47 |
| 22994 22 | 22940 22 | 22940 14 pt<br>22940 21 pt |
| 22994 31 | 22940 31 | 22940 14 pt<br>22940 21 pt |
| 22994 35 | 22940 35 | 22940 14 pt<br>22940 21 pt |
| 22994 39 | 22940 39 | 22940 14 pt<br>22940 28 |
| 22994 41 | 22940 41 | 22940 41 |
| 22995 17 | 22930 17 | 22930 17 |
| 22995 19 | 22930 19 | 22930 19 |
| 22995 32 | 22930 32 | 22930 32 |
| 22995 33<br>22995 35 | 22930 33<br>22930 35 | 22930 34 |
| 22995 57 | 22930 57 | 22930 57 |
| 22996 01 | 22996 01 | 22992 61 |
| 22996 03 | 22996 03 | 22992 75 |
| 22996 10 | 22996 10 | 22993 40 |
| 22996 11 | 22996 11 | 22993 50 |
| 23213 00 | 23213 00 | 23212 00<br>23214 00 pt |
| 23216 00 | 23216 00 | 23214 00 pt |
| 23222 00 | 23215 00 | 23215 00 |
| 23229 11 | 23229 93 | 93000 00 |
| 23229 12 | 23219 15 | 23219 15 |
| 23251 00 | 23271 11 | 23271 00 |
| 23252 00 | 23283 00 | 23283 00 |
| 23259 11 | 23279 13 | 23279 00 pt |
| 23259 12 | 23289 11 | 23289 11 |
| 23261 00 | 23281 00 | 23281 00 |
| 23262 00 | 23284 00 | 23284 00 |
| 23269 00 | 23289 13 | 23289 13 |
| 23299 11 | 23279 11 | 23279 00 pt |
| 23299 13 | 23299 93 | 93000 00 |
| 23313 00 | 23313 00 | 25512 00<br>23317 00 pt |
| 23314 00 | 23314 00 | 23317 00 pt |
| 23413 00 | 23413 00 | 23413 30<br>23413 31 |
| 23531 01 | 23521 15 | 23521 15 |
| 23531 03 | 23521 41 | 23521 41 |
| 23531 05 | 23521 83 | 23521 83 |
| 23531 09 | 23521 91 | 23521 91 |
| 23532 01 | 23522 12 | 23522 12 |
| 23532 03 | 23522 15 | 23522 15 |
| 23532 05 | 23522 17 | 23522 17 |
| 23532 09 | 23522 98 | 23522 98 |
| 23533 01 | 23510 12 | 23510 12 |
| 23533 03 | 23510 41 | 23510 41 |
| 23533 09 | 23510 93 | 23510 93 |
| 23613 00 | 23613 00 | 23611 30 pt<br>23612 00 |
| 23614 00 | 23614 00 | 23611 30 pt |
| 23615 00 | 23615 00 | 23611 10 |
| 23692 00 | 23631 00 | 23631 00 |
| 23693 40 | 23691 40 | 23691 40 |
| 23693 70 | 23693 70 | 23691 70 |
| 23693 80<br>23693 93 | 23691 80<br>23691 93 | 23691 92 |
| 23813 00 | 23813 00 | 23811 00 pt<br>23812 00 pt |
| 23814 00 | 23814 00 | 23811 00 pt<br>23812 00 pt |
| 23910 10 | 23910 10 | 23910 11 pt<br>23910 17 pt<br>23910 18 pt<br>23910 51 pt<br>23910 57 pt<br>23910 58 pt |
| 23910 12 | 23910 12 | 23910 11 pt |
| 23910 19<br>23910 21 | 23910 19<br>23910 21 | 23910 17 |
| 23910 25 | 23910 25 | 23910 18 pt |
| 23910 52 | 23910 52 | 23910 51 pt |
| 23910 59<br>23910 61 | 23910 59<br>23910 61 | 23910 57 |
| 23910 62 | 23910 62 | 23910 58 pt |
| 23921 11 | 23921 11 | 23921 12 pt<br>23921 13 pt<br>23921 15 pt<br>23921 17 pt<br>23921 18 pt<br>23921 19 pt<br>23921 27 pt<br>23921 28 pt<br>23921 29 pt |
| 23921 14 | 23921 14 | 23921 12 pt |
| 23921 16 | 23921 16 | 23921 13 pt<br>23921 15 pt |
| 23921 20 | 23921 20 | 23921 17 pt |
| 23921 21 | 23921 21 | 23921 18 pt<br>23921 19 pt |
| 23921 24 | 23921 24 | 23921 23<br>23921 25 |
| 23921 30 | 23921 30 | 23921 27 pt |
| 23921 31 | 23921 31 | 23921 28 pt<br>23921 29 pt |
| 23923 10<br>23923 13 | 23923 10<br>23923 13 | 23923 00 |

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| 1987 published | 1987 collected | 1982 published |
|---|---|---|
| 23924 12 | 23924 12 | 23924 11 pt<br>23924 13 pt<br>23924 39 pt |
| 23924 14 | 23924 14 | 23924 11 pt<br>23924 13 pt<br>23924 39 pt |
| 23924 16 | 23924 16 | 23924 11 pt<br>23924 13 pt<br>23924 39 pt |
| 23924 33 | 23924 33 | 23924 31 pt<br>23924 39 pt |
| 23924 35 | 23924 35 | 23924 31 pt<br>23924 39 |
| 23924 36 | 23924 36 | |
| 23924 37 | 23924 37 | 23924 44 pt<br>23924 45 pt<br>23924 47 pt<br>23924 49 pt |
| 23924 38 | 23924 38 | 23924 44 pt<br>23924 45 pt |
| 23924 40 | 23924 40 | 23924 47 pt<br>23924 49 pt |
| 23924 41 | 23924 41 | 23924 41<br>23924 44 pt<br>23924 45 pt |
| 23924 43 | 23924 43 | 23924 47 pt<br>23924 49 pt |
| 23924 46 | 23924 46 | 23924 44 pt<br>23924 45 pt |
| 23924 48 | 23924 48 | 23924 47 pt<br>23924 49 pt |
| 23924 50 | 23924 50 | 23924 42<br>23924 44 pt<br>23924 45 pt |
| 23924 51 | 23924 51 | 23924 47 pt<br>23924 49 pt |
| 23924 54 | 23924 54 | 23924 49 pt |
| 23924 55 | 23924 55 | 23924 53 pt |
| 23924 56 | 23924 56 | 23924 52 pt<br>23924 53 pt |
| 23924 91 | 23924 91 | 23924 83<br>23924 84 |
| 23924 92 | 23924 92 | 23924 85 |
| 23924 93 | 23924 93 | 23924 86 |
| 23924 95 | 23924 95 | 23924 87<br>23924 88 |
| 23924 96 | 23924 96 | 23924 89 |
| 23930 95<br>23930 96 | 23930 95<br>23930 96 | 23930 93 |
| 23940 61<br>23940 63<br>23940 65 | 23940 61<br>23940 63<br>23940 65 | 23940 98 |
| 23959 00 | 23951 12<br>23959 11 | 23951 12<br>23959 11 pt |
| 23958 11 | 23959 11 | 23951 11 pt |
| 23958 33 | 23959 33 | 23959 33 |
| 23964 34 | 23951 34 | 23951 34 |
| 23964 37 | 23951 37 | 23951 37 |
| 23990 97<br>23990 99 | 23990 97<br>23990 99 | 23990 96 |
| 24111 09 | 24111 09 | 24111 25 pt |
| 24111 27 | 24111 27 | 24111 19<br>24111 25 pt |
| 24112 23 | 24112 23 | 24112 27 pt |
| 24112 28 | 24112 28 | 24112 11<br>24112 15<br>24112 20<br>24112 22<br>24112 27 pt |
| 24113 11<br>24113 13 | 24113 11<br>24113 13 | 24113 00 |
| 24114 08<br>24114 10 | 24114 08<br>24114 10 | 24114 11 |
| 24114 12<br>24114 14 | 24114 12<br>24114 14 | 24114 13 |
| 24114 16 | 24114 16 | 24114 17 pt |
| 24114 18 | 24114 18 | 24114 19 pt |
| 24114 22 | 24114 22 | 24114 17 pt |
| 24114 24 | 24114 24 | 24114 19 pt |
| 24114 29<br>24114 33<br>24114 35 | 24114 29<br>24114 33<br>24114 35 | 24114 31 |
| 24211 61<br>24211 63<br>24211 65 | 24211 61<br>24211 63<br>24211 65 | 24211 71 |
| 24211 75<br>24211 77 | 24211 75<br>24211 77 | 24211 73 |
| 24212 31 | 24212 31 | 24212 22 pt<br>24212 23 pt<br>24212 25 pt |
| 24212 33 | 24212 33 | 24212 22 pt |
| 24212 35 | 24212 35 | 24212 23 pt |
| 24212 37 | 24212 37 | 24212 25 pt |
| 24215 16 | 24215 16 | 24215 77 pt |
| 24215 18 | 24215 18 | 24215 78 pt |
| 24215 22 | 24215 22 | 24215 77 pt |
| 24215 24 | 24215 24 | 24215 78 pt |
| 24261 21<br>24261 23 | 24261 21<br>24261 23 | 24261 19 |
| 24262 24 | 24262 24 | 24262 23<br>24262 25 |
| 24262 86 | 24262 86 | 24262 89 |
| 24266 11<br>24266 13 | 24266 11<br>24266 13 | 24266 00 |
| 24290 61 | 24290 61 | 24290 63<br>24290 73 |
| 24290 83 | 24290 83 | 24290 81<br>24290 89 |
| 24312 00 | 24312 00 | 24312 75 |
| 24312 09 | 24312 09 | 24312 11<br>24312 13 |
| 24318 73<br>24318 77 | 24318 73<br>24318 77 | 24318 75 |
| 24353 11 | 24353 11 | 24353 01 pt<br>24353 03 pt |
| 24353 31 | 24353 31 | 24353 01 pt<br>24353 03 pt |
| 24353 98 | 24353 98 | 24353 01 pt<br>24353 03 pt |
| 24354 27<br>24354 31 | 24354 27<br>24354 31 | 24354 29 |
| 24363 11 | 24363 11 | 24363 01 pt<br>24363 03 pt |
| 24363 31 | 24363 31 | 24363 01 pt<br>24363 03 pt |
| 24363 98 | 24363 98 | 24363 01 pt<br>24363 03 pt |
| 24367 00 | 24367 00 | 24367 01<br>24367 03 |
| 24411 27 | 24411 27 | 24411 25<br>24411 51 |
| 24411 63 | 24411 63 | 24411 65<br>24411 83 |
| 24522 17<br>24522 19 | 24522 17<br>24522 19 | 24522 21 |
| 24912 01<br>24912 03<br>24912 05<br>24912 07 | 24912 01<br>24912 03<br>24912 05<br>24912 07 | 24912 11 |
| 24912 09<br>24912 12<br>24912 14<br>24912 16 | 24912 09<br>24912 12<br>24912 14<br>24912 16 | 24912 13 |
| 24913 01<br>24913 03 | 24913 01<br>24913 03 | 24913 11 |
| 24913 05<br>24913 07<br>24913 09<br>24913 12<br>24913 14 | 24913 05<br>24913 07<br>24913 09<br>24913 12<br>24913 14 | 24913 13 |
| 24919 01<br>24919 03<br>24919 05<br>24919 07<br>24919 09 | 24919 01<br>24919 03<br>24919 05<br>24919 07<br>24919 09 | 24919 00 |
| 24931 03 | 24921 03 | 24920 03 |
| 24931 05 | 24921 05 | 24920 05 |
| 24931 07 | 24921 07 | 24920 07 |
| 24931 09 | 24921 09 | 24920 09 |
| 24931 12 | 24921 12 | 24920 12 |
| 24931 14 | 24921 14 | 24920 14 |
| 24931 16 | 24921 16 | 24920 16 |
| 24931 18 | 24921 18 | 24920 18 |
| 24931 19 | 24921 19 | 24920 19 |
| 24932 00 | 24922 00 | 24920 00 |
| 24933 14 | 24993 14 | 24993 14 |
| 24933 15 | 24993 15 | 24993 15 |
| 24933 18 | 24993 18 | 24993 16<br>24993 17 |
| 24934 00 | 24996 00 | 24996 00<br>24996 12<br>24996 13<br>24996 15<br>24996 16<br>24996 17<br>24996 18<br>24996 19 |
| 24935 00 | 26611 00 | 26611 00 |
| 24936 14 | 24998 14 | 24998 14 |
| 24936 15 | 24998 15 | 24998 15 |
| 24936 16 | 24998 16 | 24998 16 |
| 24936 17 | 24998 17 | 24998 17 |
| 24937 21 | 24995 21 | 24995 21 |
| 24937 31 | 24995 31 | 24995 31 |
| 24992 00 | 24992 00 | 24992 00<br>24992 21<br>24992 97 |
| 24994 11 | 2499A 11 | 2499A 11 |
| 24994 14 | 2499A 14 | 2499A 13 pt |
| 24994 14—Con.<br>24994 16 | 2499A 14—Con.<br>2499A 16 | 2499A 13 pt<br>—Con.<br>2499A 15 pt |
| 24994 17 | 2499A 17 | 2499A 17 |
| 24994 19 | 2499A 19 | 2499A 19 |
| 24994 23 | 2499A 23 | 2499A 23 |
| 24994 25 | 2499A 25 | 2499A 25 |
| 24994 41 | 2499A 41 | 2499A 41 |
| 24994 51 | 2499A 51 | 2499A 51 |
| 24994 54 | 2499A 54 | 2499A 53<br>2499A 55 |
| 24994 57 | 2499A 57 | 2499A 57 |
| 24994 58 | 2499A 58 | 2499A 59<br>2499A 60 |
| 24994 61 | 2499A 61 | 2499A 61 |
| 24994 62 | 2499A 62 | 2499A 62 |
| 24994 71 | 2499A 71 | 2499A 71 |
| 24994 75 | 2499A 75 | 2499A 75 |
| 24994 79 | 2499A 79 | 2499A 79 |
| 24994 85 | 2499A 85 | 2499A 85 |
| 24994 89 | 2499A 89 | 2499A 89 |
| 24994 91 | 2499A 91 | 2499A 91 |
| 24994 97 | 2499A 97 | 2499A 97 |
| 24994 99 | 2499A 99 | 2499A 13 pt<br>2499A 15 pt<br>2499A 63<br>2499A 64<br>2499A 98 |
| 25112 91<br>25112 98 | 25112 91<br>25112 98 | 25112 99 |
| 25113 33<br>25113 35 | 25113 33<br>25113 35 | 25113 31 |
| 25113 91<br>25113 99 | 25113 91<br>25113 99 | 25113 98 |
| 25115 17 | 25158 00 | 25158 00 |
| 25115 91<br>25115 99 | 25115 91<br>25115 99 | 25115 98 |
| 25116 21<br>25116 31<br>25116 98 | 25116 21<br>25116 31<br>25116 98 | 25116 99 |
| 25117 43<br>25117 45<br>25117 47<br>25117 49 | 25117 43<br>25117 45<br>25117 47<br>25117 49 | 25117 48 |
| 25117 63<br>25117 65<br>25117 67<br>25117 69 | 25117 63<br>25117 65<br>25117 67<br>25117 69 | 25117 61 |
| 25120 31<br>25120 35 | 25120 31<br>25120 35 | 25120 32 |
| 25145 12<br>25145 13 | 25145 12<br>25145 13 | 25141 11 |
| 25145 15 | 25145 15 | 25141 15 |
| 25145 17 | 25145 17 | 25141 17 |
| 25145 19 | 25145 19 | 25141 98 pt |
| 25145 21 | 25145 21 | 25142 11 |
| 25145 27 | 25145 27 | 25142 31 |
| 25145 98 | 25145 98 | 25141 98 pt<br>25142 71 |

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| 1987 published | 1987 collected | 1982 published |
|---|---|---|
| 25146 12 | 25146 12 | 25143 12 |
| 25146 14 | 25146 14 | 25143 14 |
| 25146 22 | 25146 22 | 25143 22 |
| 25146 24 | 25146 24 | 25143 24 |
| 25146 98 | 25146 98 | 25143 98 |
| 25147 33 | 25147 33 | 25144 33 |
| 25147 37 | 25147 37 | 25144 37 |
| 25147 55 | 25147 55 | 25144 55 |
| 25147 71 | 25147 71 | 25144 71 |
| 25147 75 | 25147 75 | 25144 75 |
| 25147 82 | 25147 82 | 25144 92 |
| 25147 83 | 25147 83 | 25144 93 |
| 25147 85<br>25147 87 | 25147 85<br>25147 87 | 25144 94 |
| 25147 91 | 25147 91 | 25144 97 pt |
| 25147 99 | 25147 99 | 25144 91<br>25144 97 pt |
| 25152 65 | 25152 65 | 25152 67<br>25152 69 |
| 25190 23<br>25190 25 | 25190 23<br>25190 25 | 25190 41 |
| 25190 33<br>25190 35 | 25190 33<br>25190 35 | 25190 32 |
| 25312 13<br>25312 15 | 25312 13<br>25312 15 | 25312 11 |
| 25312 33<br>25312 35 | 25312 33<br>25312 35 | 25312 31 |
| 25312 43<br>25312 45<br>25312 47 | 25312 43<br>25312 45<br>25312 47 | 25312 41 |
| 25425 00 | 25993 13 | 25990 97 pt |
| 25991 00 | 25991 00 | 25990 21 |
| 25992 31<br>25992 33 | 25992 31<br>25992 33 | 25990 41 |
| 25992 35<br>25992 37 | 25992 35<br>25992 37 | 25990 45 |
| 25992 47 | 25992 47 | 25990 47 |
| 25992 48 | 25992 48 | 25990 48 |
| 25994 51 | 25993 51 | 25990 51 |
| 25994 97 | 25993 97 | 25990 97 pt |
| 2621B 00 | 26612 00 | 26612 00 |
| 26530 14<br>26530 30 | 26530 14<br>26530 30 | 26530 29 |
| 26561 00 | 26541 00 | 26541 00 |
| 26562 33 | 26542 33 | 26542 33 |
| 26562 35 | 26542 35 | 26542 35 |
| 26563 10 | 26545 10 | 26545 10 |
| 26563 12 | 26545 12 | 26545 12 |
| 26563 14 | 26545 14 | 26545 14 |
| 26563 16 | 26545 16 | 26545 16 |
| 26570 14 | 26510 14 | 26510 14 |
| 26570 15 | 26510 15 | 26510 97 pt |
| 26570 21 | 26510 21 | 26510 21 |
| 26570 31 | 26510 31 | 26510 31 |
| 26570 41 | 26510 41 | 26510 41 |
| 26570 51 | 26510 51 | 26510 51 |
| 26570 61 | 26510 61 | 26510 61 |
| 26570 71 | 26510 71 | 26510 71 |
| 26570 81 | 26510 81 | 26510 81 |
| 26570 84 | 26544 84 | 26544 10 pt |
| 26570 86 | 26544 86 | 26544 12 |
| 26570 88 | 26544 88 | 26544 14 |
| 26570 90 | 26544 90 | 26544 10 pt<br>26544 16 |
| 26570 95 | 26510 95 | 26510 95 |
| 26570 96<br>26570 99 | 26510 96<br>26510 99 | 26510 97 pt |
| 26711 00<br>26711 11<br>26711 15 | 26415 00<br>26415 11<br>26415 15 | 26415 00 |
| 26712 11 | 26416 11 | 26416 11 |
| 26712 12 | 26416 12 | 26416 12 |
| 26713 13<br>26713 14 | 26419 13<br>26419 14 | 26419 11 |
| 26713 18<br>26713 21 | 26419 18<br>26419 21 | 26419 12 |
| 26714 11 | 2641A 11 | 2641A 11 |
| 26714 12 | 2641A 12 | 2641A 12 |
| 26714 13 | 2641A 13 | 2641A 13 |
| 26714 14 | 2641A 14 | 2641A 14 |
| 26714 15 | 2641A 15 | 2641A 15 |
| 26714 16 | 2641A 16 | 2641A 16 |
| 26721 13 | 26411 13 | 26411 13 |
| 26721 53 | 26411 53 | 26411 53 |
| 26722 00 | 26413 00 | 26413 00 |
| 26723 00 | 26414 00 | 26414 00 |
| 26724 45 | 2641B 45 | 2641B 45 |
| 26724 51 | 2641B 51 | 2641B 51 |
| 26724 53 | 2641B 53 | 2641B 53 |
| 26724 55<br>26724 56 | 2641B 55<br>2641B 56 | 2641B 98 pt |
| 26724 59 | 2641B 59 | 2641B 11<br>2641B 21<br>2641B 98 pt |
| 26731 00 | 26435 00 | 26435 00 |
| 26732 11 | 26436 11 | 26436 11 |
| 26732 12 | 26436 12 | 26436 12 |
| 26732 13 | 26436 13 | 26436 13 |
| 26732 14 | 26436 14 | 26436 14 |
| 26732 15 | 26436 15 | 26436 15 |
| 26732 16 | 26436 16 | 26436 16 |
| 26732 17 | 26436 17 | 26436 17 |
| 26732 18 | 26436 18 | 26436 18 |
| 26732 21 | 26436 21 | 26436 21 |
| 26732 23 | 26436 23 | 26436 23 |
| 26733 11<br>26733 12<br>26733 14 | 26437 11<br>26437 12<br>26437 14 | 26437 00 |
| 26741 11 | 26434 11 | 26434 11 |
| 26741 12 | 26434 12 | 26434 12 |
| 26741 13 | 26434 13 | 26434 13 |
| 26741 15 | 26434 15 | 26434 15 |
| 26742 11 | 26438 11 | 26438 11 |
| 26742 12 | 26438 12 | 26438 12 |
| 26751 00 | 26453 00 | 26453 00 |
| 26752 61 | 26454 61 | 26454 61 |
| 26752 71 | 26454 71 | 26454 71 |
| 26752 97 | 26454 97 | 26454 97 |
| 26753 00 | 26455 00 | 26455 00 |
| 26761 14 | 26471 14 | 26471 14 |
| 26761 51 | 26471 51 | 26471 51 |
| 26763 00 | 26473 00 | 26473 00 |
| 26763 88 | 26473 88 | 26473 88 |
| 26764 11 | 26474 11 | 26474 11 |
| 26764 25 | 26474 25 | 26474 25 |
| 26764 27 | 26474 27 | 26474 27 |
| 26764 33 | 26474 33 | 26474 33 |
| 26764 35 | 26474 35 | 26474 35 |
| 26764 37 | 26474 37 | 26474 37 |
| 26764 41 | 26474 41 | 26474 41 |
| 26764 43 | 26474 43 | 26474 43 |
| 26764 45 | 26474 45 | 26474 45 |
| 26764 47 | 26474 47 | 26474 47 |
| 26764 55 | 26474 55 | 26474 55 |
| 26764 71 | 26474 71 | 26474 71 |
| 26764 76 | 26474 76 | 26474 76 |
| 26764 77 | 26474 77 | 26474 77 |
| 26764 81 | 26474 81 | 26474 81 |
| 26764 99 | 26474 99 | 26474 85<br>26474 98 |
| 26770 00 | 26420 00 | 26420 00 |
| 26781 00 | 26481 00 | 26481 00 |
| 26782 00 | 26482 00 | 26482 00 |
| 26791 21 | 26493 21 | 26493 21 |
| 26791 23 | 26493 23 | 26493 23 |
| 26791 26<br>26791 28 | 26493 26<br>26493 28 | 26493 25 |
| 26791 32<br>26791 33<br>26791 35 | 26493 32<br>26493 33<br>26493 35 | 26493 31 |
| 26791 41 | 26493 41 | 26493 41 |
| 26792 82 | 26494 82 | 26494 82 |
| 26792 91 | 26494 91 | 26494 91 |
| 26792 96 | 26494 96 | 26494 96 |
| 26793 00 | 26496 00 | 26496 00 |
| 26794 00 | 26460 00 | 26460 11<br>26460 19 |
| 26795 11 | 26497 11 | 26497 11 |
| 26795 22<br>26795 23 | 26497 22<br>26497 23 | 26497 21 |
| 26795 31 | 26497 31 | 26497 31 |
| 26795 35 | 26497 35 | 26497 35 |
| 26795 41 | 26497 41 | 26497 41 |
| 26795 45 | 26497 45 | 26497 45 |
| 26795 48 | 26497 48 | 26497 48 |
| 26795 51 | 26497 51 | 26497 51 |
| 26795 55 | 26497 55 | 26497 55 |
| 26795 61 | 26497 61 | 26497 61 |
| 26795 69 | 26497 69 | 26497 69 |
| 27213 24 | 27213 24 | 27213 21 pt |
| 27213 28<br>27213 30 | 27213 28<br>27213 30 | 27213 29 pt |
| 27213 32 | 27213 32 | 27213 21 pt<br>27213 23<br>27213 29 pt |
| 27213 34 | 27213 34 | 27213 31 pt |
| 27213 38<br>27213 40 | 27213 38<br>27213 40 | 27213 39 pt |
| 27213 42 | 27213 42 | 27213 31 pt<br>27213 33<br>27213 39 pt |
| 27213 44 | 27213 44 | 27213 41 pt<br>27213 45 pt |
| 27213 46 | 27213 46 | 27213 41 pt<br>27213 45 pt |
| 27214 24 | 27214 24 | 27214 21 pt |
| 27214 28<br>27214 30 | 27214 28<br>27214 30 | 27214 29 pt |
| 27214 32 | 27214 32 | 27214 21 pt<br>27214 23<br>27214 29 pt |
| 27214 34 | 27214 34 | 27214 31 pt |
| 27214 38<br>27214 40 | 27214 38<br>27214 40 | 27214 39 pt |
| 27214 42 | 27214 42 | 27214 31 pt<br>27214 33<br>27214 39 pt |
| 27214 44 | 27214 44 | 27214 41 pt<br>27214 45 pt |
| 27214 46 | 27214 46 | 27214 41 pt<br>27214 45 pt |
| 2721A 70 | 2721A 70 | 2721A 30 pt<br>2721A 40 pt |
| 2721A 80 | 2721A 80 | 2721A 30 pt |
| 2721A 90 | 2721A 90 | 2721A 40 pt |
| 2721B 70 | 2721B 70 | 2721B 30 pt<br>2721B 40 pt |
| 2721B 80 | 2721B 80 | 2721B 30 pt |
| 2721B 90 | 2721B 90 | 2721B 40 pt |
| 2721C 70 | 2721C 70 | 2721C 30 pt<br>2721C 40 pt |

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| 1987 published | 1987 collected | 1982 published |
|---|---|---|
| 2721C 80 | 2721C 80 | 2721C 30 pt |
| 2721C 90 | 2721C 90 | 2721C 40 pt |
| 2731E 57 | 2731E 57 | 2731E 43<br>2731E 55 |
| 27416 00 | 27416 00 | 27411 13 |
| 27417 13 | 27417 13 | 27411 15 |
| 27417 15<br>27417 17 | 27417 15<br>27417 17 | 27411 21 |
| 27418 13 | 27418 13 | 27412 13 |
| 27418 15 | 27418 15 | 27412 15 |
| 27419 00 | 27419 00 | 27414 00 |
| 2741A 00 | 2741A 00 | 27415 21 |
| 2741B 13 | 2741B 13 | 27415 11 |
| 2741B 14 | 2741B 14 | 27415 31 |
| 2741B 15 | 2741B 15 | 27415 41 |
| 2741B 17 | 2741B 17 | 27415 61 |
| 2741B 19 | 2741B 19 | 27415 65 |
| 2741B 21 | 2741B 21 | 27415 95 |
| 2741B 23 | 2741B 23 | 27415 97 |
| 2741B 25<br>2741B 27 | 2741B 25<br>2741B 27 | 27415 99 pt |
| 2741B 91 | 2741B 91 | 27415 51<br>27415 99 pt |
| 27522 15 | 27522 15 | 27522 11 pt<br>27522 13 pt |
| 27522 16 | 27522 16 | 27522 23 pt |
| 27522 18 | 27522 18 | 27522 17 pt |
| 27522 19 | 27522 19 | 27522 00 |
| 27522 20 | 27522 20 | 27522 11 pt<br>27522 13 pt<br>27522 17 pt<br>27522 23 pt |
| 27523 13 | 27523 13 | 27523 21<br>27523 22 |
| 27525 23 | 27525 23 | 27525 22<br>27525 24 |
| 27525 33 | 27525 33 | 27525 34<br>27525 36 |
| 27526 11 | 27526 11 | 27526 12<br>27526 14 |
| 27542 11 | 27542 11 | 27542 21 pt |
| 27542 13 | 27542 13 | 27542 24 pt |
| 27542 15 | 27542 15 | 27542 27 pt |
| 27542 17 | 27542 17 | 27542 21 pt<br>27542 24 pt<br>27542 27 pt |
| 27590 00 | 27510 00 pt | 27510 00 pt |
| 27591 12 | 2751A 12 | 27511 15 |
| 27591 14 | 2751A 14 | 27511 17 |
| 27592 11 | 2751B 11 | 27512 11 pt |
| 27592 13 | 2751B 13 | 27512 15 pt |
| 27592 15 | 2751B 15 | 27512 23 pt |
| 27592 17 | 2751B 17 | 27512 16 pt |
| 27592 19 | 2751B 19 | 27512 18 pt |
| 27592 21 | 2751B 21 | 27512 11 pt<br>27512 15 pt<br>27512 16 pt<br>27512 18 pt<br>27512 23 pt |
| 27592 23 | 2751B 23 | 27512 33 pt |
| 27592 27 | 2751B 27 | 27512 41 pt<br>27512 43 pt |
| 27593 12 | 2751C 12 | 27513 11 |
| 27593 18 | 2751C 18 | 27513 17<br>27513 19 |
| 27594 11 | 2751D 11 | 27514 11 |
| 27594 13 | 2751D 13 | 27514 13 |
| 27594 15 | 2751D 15 | 27514 19 |
| 27594 17 | 2751D 17 | 27514 25 |
| 27594 19 | 2751D 19 | 27514 27 |
| 27595 12 | 2751E 12 | 27515 11 |
| 27595 14 | 2751E 14 | 27515 23 |
| 27595 16 | 2751E 16 | 27515 25 |
| 27595 18 | 2751E 18 | 27515 31 |
| 27595 20 | 2751E 20 | 27515 33 |
| 27595 22 | 2751E 22 | 27515 41 |
| 27595 24 | 2751E 24 | 27515 98 |
| 27596 11 | 2751F 11 | 27516 13 |
| 27596 13 | 2751F 13 | 27516 41 |
| 27596 15 | 2751F 15 | 27516 51 |
| 27596 17 | 2751F 17 | 27516 71 |
| 27596 19 | 2751F 19 | 27516 75 |
| 27596 21 | 2751F 21 | 27516 45 |
| 27596 23 | 2751F 23 | 27516 93 |
| 27596 25 | 2751F 25 | 27516 95 |
| 27597 12 | 2751G 12 | 27511 00 |
| 27597 14 | 2751G 14 | 27512 13 pt |
| 27597 16 | 2751G 16 | 27512 17 pt |
| 27597 18<br>27597 20 | 2751G 18<br>2751G 20 | 27512 19 pt |
| 27597 22 | 2751G 22 | 27512 13 pt<br>27512 17 pt<br>27512 19 pt |
| 27597 24 | 2751G 24 | 27512 31 |
| 27597 26 | 2751G 26 | 27512 33 pt |
| 27597 28 | 2751G 28 | 27512 41 pt |
| 27597 30 | 2751G 30 | 27512 43 pt |
| 27597 32 | 2751G 32 | 27514 00 |
| 27597 34 | 2751G 34 | 27515 00 |
| 27597 36<br>27597 38 | 2751G 36<br>2751G 38 | 27516 00 |
| 27598 11<br>27598 13 | 2751H 11<br>2751H 13 | 27519 17 pt |
| 27598 15<br>27598 17 | 2751H 15<br>2751H 17 | 27519 15<br>27519 17 pt |
| 27598 19 | 2751H 19 | 27519 23 |
| 27598 21 | 2751H 21 | 27519 25 |
| 27598 23 | 2751H 23 | 27519 29 |
| 27598 25 | 2751H 25 | 27519 11 |
| 27598 27 | 2751H 27 | 27519 81 |
| 27598 29 | 2751H 29 | 27519 85 |
| 27598 31 | 2751H 31 | 27519 98 |
| 27599 12 | 27531 12 | 27531 12 |
| 27599 22 | 27531 22 | 27531 22 |
| 27599 32 | 27531 32 | 27531 32 |
| 2759A 00 | 2751J 00 | 27510 00 pt |
| 27823 00 | 27823 00 | 27823 00<br>27823 43<br>27823 45 |
| 27892 81<br>27892 92 | 27892 81<br>27892 92 | 27892 91 |
| 27910 16<br>27910 18 | 27910 16<br>27910 18 | 27910 12<br>27910 14 |
| 27961 13 | 27951 13 | 27951 13<br>35557 77 pt |
| 27961 15 | 27951 15 | 27951 15<br>35557 77 pt |
| 27961 17 | 27951 17 | 27951 17<br>35557 77 pt |
| 27961 23 | 27951 23 | 27951 23<br>35557 77 pt |
| 27961 29 | 27951 29 | 27951 29<br>35557 77 pt |
| 27962 31 | 27952 31 | 27952 31 |
| 27962 39 | 27952 39 | 27952 39 |
| 27962 41 | 27952 41 | 27952 41 |
| 27963 15 | 27532 15 | 27532 15 |
| 27963 25 | 27532 25 | 27532 25 |
| 27963 35 | 27532 35 | 27532 35 |
| 27963 40 | 27532 55 | 27532 55 |
| 27963 45<br>27963 47 | 27532 45<br>27532 47 | 27532 65 pt |
| 27963 53 | 27547 00 | 27547 00 |
| 27963 61 | 27930 15 | 27930 15 |
| 27963 63 | 27930 17 | 27930 17 |
| 27963 65 | 27930 21 | 27930 13<br>27930 19 |
| 27963 67 | 27940 00 | 27940 00 |
| 27963 71 | 27532 71 | 27532 65 pt |
| 27963 72<br>27963 73 | 27532 72<br>27532 73 | 27532 75 |
| 28161 11<br>28161 21 | 28161 11<br>28161 21 | 28161 00 |
| 28162 30<br>28162 40<br>28162 50<br>28162 60 | 28162 30<br>28162 40<br>28162 50<br>28162 60 | 28162 98 |
| 28230 34 | 28230 34 | 28230 33 pt<br>28230 37 pt |
| 28230 38 | 28230 38 | 28230 33 pt<br>28230 37 pt |
| 28230 39 | 28230 39 | 28230 33 pt<br>28230 37 pt |
| 28241 13 | 28241 13 | 28241 14 pt<br>28241 16 pt |
| 28241 19<br>28241 21 | 28241 19<br>28241 21 | 28241 11 pt |
| 28241 23 | 28241 23 | 28241 16 pt |
| 28241 25 | 28241 25 | 28241 14 pt<br>28241 16 pt |
| 28244 32 | 28244 32 | 28244 31 pt<br>28244 33 pt |
| 28244 34<br>28244 36 | 28244 34<br>28244 36 | 28244 31 pt |
| 28244 38 | 28244 38 | 28244 33 pt |
| 28244 41 | 28244 41 | 28244 31 pt<br>28244 33 pt |
| 28244 43 | 28244 43 | 28244 35 |
| 28244 45 | 28244 45 | 28244 37 |
| 28244 47 | 28244 47 | 28244 39 |
| 28247 13 | 28247 13 | 28243 31 pt<br>28245 61 pt<br>28245 73 pt |
| 28247 15 | 28247 15 | 28243 31 pt<br>28245 61 pt<br>28245 73 pt |
| 28247 16 | 28247 16 | 28243 31 pt<br>28245 63 pt<br>28245 72 pt |
| 28247 19 | 28247 19 | 28243 31 pt<br>28245 61 pt<br>28245 63 pt<br>28245 72 pt<br>28245 73 pt |
| 28247 31 | 28247 31 | 28243 33 pt |
| 28247 33 | 28247 33 | 28243 33 pt<br>28245 66<br>28245 74 |
| 28247 41 | 28247 41 | 28243 39<br>28245 69<br>28245 79 |
| 28248 15 | 28248 15 | 28246 15 |
| 28248 51 | 28248 51 | 28246 51 |
| 28248 81 | 28248 81 | 28246 31<br>28246 62<br>28246 71 |
| 28333 24<br>28333 26 | 28333 24<br>28333 26 | 28333 25 |
| 28351 10 | 2831A 21 | 2831A 21 |
| 28351 15 | 2831A 22 | 2831A 22 |
| 28351 20 | 2831A 24 | 2831A 24 |
| 28351 25 | 2831A 25 | 2831A 25 |
| 28351 30 | 2831A 26 | 2831A 26 |
| 28351 35 | 2831A 41 | 2831A 27<br>2831A 28 |
| 28351 40<br>28351 45 | 2831A 42<br>2831A 30 | 2831A 29 |
| 28352 10 | 2831A 31 | 2831A 31 |
| 28352 15 | 2831A 51 | 2831A 32<br>2831A 33 |
| 28352 20 | 2831A 61 | 2831A 35<br>2831A 36<br>2831A 37 |
| 28352 25 | 2831A 39 | 2831A 39 |

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| 1987 published | 1987 collected | 1982 published |
|---|---|---|
| 28361 15 | 28311 15 | 28311 15 |
| 28361 20 | 28311 20 | 28311 13<br>28311 17<br>28311 19 |
| 28362 10<br>28362 20 | 28312 10<br>28312 20 | 28312 00 |
| 28363 10 | 28313 10 | 28317 15 |
| 28363 20 | 28313 20 | 28317 25 |
| 28364 10<br>28364 15 | 28314 10<br>28314 15 | 28318 14 |
| 28364 20<br>28364 25 | 28314 20<br>28314 25 | 28318 16 |
| 28364 30 | 28314 30 | 28319 00 |
| 28411 43 | 28411 43 | 28411 42<br>28411 44 |
| 28411 62 | 28411 62 | 28411 61<br>28411 63 |
| 28412 18 | 28412 18 | 28412 05<br>28412 19 |
| 28413 97 | 28413 97 | 28413 51<br>28413 61<br>28413 95 |
| 28423 53<br>28423 95 | 28423 53<br>28423 95 | 28423 99 |
| 28441 49 | 28441 49 | 28441 37<br>28441 39 |
| 28443 25<br>28443 27<br>28443 95 | 28443 25<br>28443 27<br>28443 95 | 28443 98 |
| 28444 71 | 28444 71 | 28444 73<br>28444 75 |
| 28445 02 | 28445 02 | 28445 11 |
| 28445 03 | 28445 03 | 28445 12 |
| 28445 04 | 28445 04 | 28445 13 |
| 28445 05 | 28445 05 | 28445 14 |
| 28445 08<br>28445 09 | 28445 08<br>28445 09 | 28445 15 |
| 28445 50 | 28445 50 | 28445 45<br>28445 48 |
| 28445 59<br>28445 99 | 28445 59<br>28445 99 | 28445 95 |
| 28511 00 | 28511 00 | 28511 11<br>28511 21<br>28511 22<br>28511 24<br>28511 25<br>28511 35<br>28511 37<br>28511 38<br>28511 43<br>28511 45<br>28511 47<br>28511 49<br>28511 53<br>28511 57<br>28511 59<br>28511 63<br>28511 65<br>28511 69<br>28511 71<br>28511 73<br>28511 75<br>28511 77<br>28511 81<br>28511 83 |
| 28511 00—Con. | 28511 00—Con. | 28511 11—Con.<br>28511 8[illegible]<br>28511 8[illegible]<br>28511 [illegible] |
| 28512 00 | 28512 00 | 28512 21<br>28512 23<br>28512 25<br>28512 27<br>28512 31<br>28512 33<br>28512 35<br>28512 37<br>28512 39<br>28512 41<br>28512 43<br>28512 45<br>28512 47<br>28512 49<br>28512 51<br>28512 53<br>28512 55<br>28512 58<br>28512 59<br>28512 61<br>28512 65 |
| 28513 00 | 28513 00 | 28513 01<br>28513 05<br>28513 07<br>28513 11<br>28513 13<br>28513 16<br>28513 27<br>28513 29<br>28513 31 |
| 28515 00 | 28515 00 | 28515 21<br>28515 22<br>28515 23<br>28515 31<br>28515 32<br>28515 99 |
| 28611 98 | 28611 98 | 28611 13<br>28611 23<br>28611 99 |
| 28612 31 | 28612 31 | 28612 11<br>28612 21 |
| 28656 58 | 2911C 58 | 2911C 58 |
| 28656 59 | 2911C 59 | 2911C 59 |
| 28691 32 | 2911B 32 | 2911B 32 |
| 28691 33 | 2911B 33 | 2911B 33 |
| 28695 25<br>28695 27 | 28695 25<br>28695 27 | 28695 21 |
| 28742 00 | 28742 00 | 28742 00<br>28742 10<br>28742 71 |
| 28744 10 | 28744 10 | 28744 21 pt<br>28744 31 pt |
| 28744 20 | 28744 20 | 28744 11 pt<br>28744 21 pt |
| 28744 30 | 28744 30 | 28744 31 pt |
| 28744 40 | 28744 40 | 28744 11 pt<br>28744 21 pt |
| 28744 50 | 28744 50 | 28744 31 pt |
| 28744 60 | 28744 60 | 28744 11 pt<br>28744 21 pt |
| 28744 70 | 28744 70 | 28744 31 pt |
| 28750 10 | 28750 10 | 28750 21 pt<br>28750 31 pt |
| 28750 20 | 28750 20 | 28750 11 pt<br>28750 21 pt |
| 28750 30 | 28750 30 | 28750 31 pt |
| 28750 40 | 28750 40 | 28750 11 pt<br>28750 21 pt |
| 28750 50 | 28750 50 | 28750 31 pt |
| 28750 60 | 28750 60 | 28750 11 pt<br>28750 21 pt |
| 28750 70 | 28750 70 | 28750 31 pt |
| 28797 51 | 28797 51 | 28797 31<br>28797 81 |
| 28798 30<br>28798 83 | 28798 30<br>28798 83 | 28798 81 |
| 28914 57<br>28914 98 | 28914 57<br>28914 98 | 28914 89 |
| 28916 10 | 28916 10 | 28915 56 pt |
| 28916 20 | 28916 20 | 28915 61 pt |
| 28916 30 | 28916 30 | 28915 63 pt |
| 28916 40 | 28916 40 | 28915 65 pt |
| 28916 50 | 28916 50 | 28915 67 pt |
| 28917 11 | 28917 11 | 28915 54 |
| 28917 21 | 28917 21 | 28915 55 |
| 28917 31 | 28917 31 | 28915 56 pt |
| 28917 41 | 28917 41 | 28915 61 pt |
| 28917 51 | 28917 51 | 28915 63 pt |
| 28917 61 | 28917 61 | 28915 65 pt |
| 28917 71 | 28917 71 | 28915 67 pt |
| 28920 39 | 28920 39 | 28920 35<br>28920 37 |
| 28920 57 | 28920 57 | 28920 53<br>28920 55 |
| 28995 25<br>28995 26 | 28995 25<br>28995 26 | 28995 29 |
| 28995 40<br>28995 42<br>28995 45 | 28995 40<br>28995 42<br>28995 45 | 28995 37 |
| 28995 69<br>28995 70<br>28995 71 | 28995 69<br>28995 70<br>28995 71 | 28995 68 |
| 28995 82<br>28995 83<br>28995 84 | 28995 82<br>28995 83<br>28995 84 | 28995 81 |
| 28995 88<br>28995 89 | 28995 88<br>28995 89 | 28995 87 |
| 28995 94<br>28995 96 | 28995 94<br>28995 96 | 28995 95 |
| 28995 98<br>28995 99 | 28995 98<br>28995 99 | 28995 97 |
| 29118 59 | 29118 59 | 29118 54<br>29118 58 |
| 2911D 23<br>2911D 25 | 2911D 23<br>2911D 25 | 2911D 21 |
| 29521 13 | 29521 13 | 29521 11 |
| 29521 13—Con.<br>29521 15 | 29521 13—Con.<br>29521 15 | 29521 11—Con. |
| 29523 60 | 29523 60 | 29523 54 pt<br>29523 56 pt |
| 29523 62 | 29523 62 | 29523 53 |
| 29523 64 | 29523 64 | 29523 54 pt<br>29523 56 pt |
| 29523 66 | 29523 66 | 29523 54 pt<br>29523 56 pt |
| 29990 20<br>29990 30 | 2911D 20<br>2911D 30 | 2911D 92 |
| 29990 93<br>29990 99 | 29990 93<br>29990 99 | 29990 98 |
| 31116 24 | 31116 24 | 31116 23<br>31116 25 |
| 31116 37<br>31116 38 | 31116 37<br>31116 38 | 31116 72 pt |
| 31116 43 | 31116 43 | 31116 41<br>31116 72 pt |
| 31116 51 | 31116 51 | 31116 53<br>31116 72 pt |
| 31116 57 | 31116 57 | 31116 55<br>31116 72 pt |
| 31116 62 | 31116 62 | 31116 61<br>31116 72 pt |
| 31116 63<br>31116 65 | 31116 63<br>31116 65 | 31116 64<br>31116 72 pt |
| 31430 00 | 31430 00 | 31430 00<br>31434 00<br>31435 00 |
| 31440 00 | 31440 00 | 31445 00<br>31446 00<br>31447 00<br>31448 00 |
| 31490 10 | 31490 10 | 31497 23 |
| 31490 20 | 31490 20 | 31491 00<br>31493 00<br>31495 00<br>31496 00<br>31497 25 |
| 31510 00 | 31510 00 | 31510 20<br>31510 70 |
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| 31610 03 | 31610 03 | 31610 16 pt<br>31610 18 pt<br>31610 35 pt<br>31610 37 pt<br>31610 39 pt |
| 31610 05 | 31610 05 | 31610 16 pt<br>31610 18 pt<br>31610 35 pt<br>31610 37 pt<br>31610 39 pt |
| 31610 07 | 31610 07 | 31610 24<br>31610 32 |
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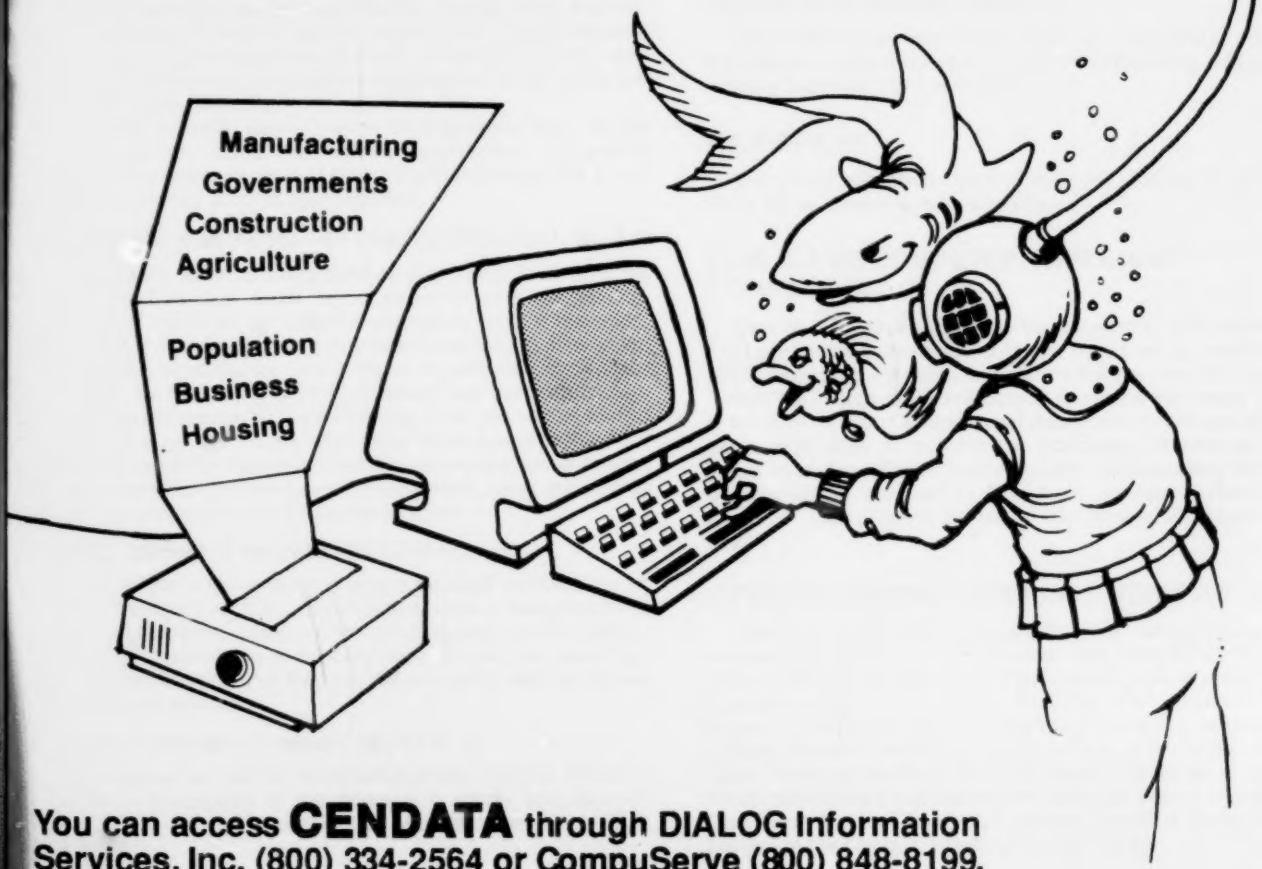


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# PUBLICATION PROGRAM

## 1987 CENSUS OF MANUFACTURES

Publications of the 1987 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, DC 20233.

### Preliminary Reports

#### Industry series—83 reports (MC87-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the U.S. and States are released in one report.

### Final Reports

#### Industry series—83 reports (MC87-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries ("dairy products" includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added buy manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

#### Geographic area series—51 reports (MC87-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MSA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MSA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

#### Subject series—7 reports (MC87-S-1 to -7)

Each of the seven reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, type of organization, water use in manufacturing, textile machinery in place, distribution of sales by class of customer, manufacturers' shipments to the Federal Government, and a general national-level summary.

#### Reference series—1 report (MC87-R-1)

The Numerical List of Manufactured and Mineral Products includes a description of the principal products and services published in the 1987 Censuses of Manufactures and Mineral Industries.

#### Location of Manufacturing Plants—1 report (MC87-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and zip codes for each State. (This report is available only on magnetic tape and CD-ROM.)

### Analytical Reports—3 reports (AR87-1 to -3)

#### Exports From Manufacturing Establishments (AR87-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

#### Selected Characteristics of Manufacturing Establishments That Export (AR87-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

#### Indexes of Production (AR87-3)

The indexes presented in this report are designed to measure the change in physical output of each manufacturing and mineral industry between 1982 and 1987.

## MICROFICHE

Every final published report in the 1987 Census of Manufactures will be available on microfiche.

## PUBLIC-USE COMPUTER TAPES AND COMPACT DISCS

Data from the final industry series, geographic area series, and the Location of Manufacturing Plants report will be available on public-use computer tapes and compact discs-read only memory (CD-ROM). These tapes will provide the same information found in the final reports. Computerized data products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, DC 20233.

## OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, service industries, construction industries, mineral industries, transportation, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1987 Economic Censuses. A separate series of reports covers the censuses of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, DC 20233.